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BRITISH MEDICAL JOURNAL

LONDON SATURDAY JULY 8 1944

A CLINICAL VIEW OF SHOCK*

BY

V. ZACHARY COPE, M.S., F.R.C.S.

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Many words whose significance is well understood are difficult to define. This remark applies to the word "life" itself, and it is not surprising that shock, which threatens life and is the very shadow of death, should escape precise elucidation and definition. The difficulty is greater because similar symptoms may be produced by so many different agencies. The conditions induced by traumatic shock can be simulated by the effects of severe haemorrhage, by sudden loss of body fluid (as in cholera), by the introduction of foreign protein into the body, by severe burns, by high-voltage electric currents, by acute toxaemias, by some cases of visceral perforation, and even by severe mental stress.

Some critical observers have been so impressed by the absence of definite and easily measurable criteria of shock that they will accept no definition, and prefer to describe it by the enumeration of symptoms. Others have suggested different terms for the condition, such as "depressant syndrome," "traumatic hypodromia," or "exaemia," which give some indication of the pathological process involved. Shock is, however, a clinical state, and any definition must allow for the varied clinical picture which every clinical state may from time to time present. In any definition it is unwise to specify any particular symptom, for the first thing the clinician should learn is that there is hardly one symptom of shock which is constant; yet by a careful consideration of all the symptoms it can almost always be decided whether or not shock is present. It is generally agreed that shock is associated with impending or actual failure of the peripheral circulation, and we might perhaps adopt as a safe working definition that "shock is a condition following the application of harmful stimuli, or the rapid depletion of the body fluids, in which there is a serious and clinically demonstrable depression of the vital processes of the body, particularly of the circulation."

In connexion with trauma it is customary to speak of primary and secondary shock—the former coming on immediately and the latter at an interval after the injury. Perhaps the terms "immediate" and "delayed" would be clinically preferable to indicate the immediate and delayed onset of shock. Immediate shock may last for only a short time unless the causative factors continue to act.

Clinical Symptoms

What are the main clinical symptoms of the shocked condition? *A persistent reduced blood pressure* is regarded by most investigators and clinicians as an essential feature of shock. They say, "No fall of blood pressure, no shock." Yet 30 years ago Parsons and Tyrrell Gray showed that clinical symptoms of shock might appear with a blood pressure that was still high; and in the last war Bayliss showed that a high blood pressure might persist with a small blood volume owing to powerful vasoconstriction. Recently Grant has called attention to the same phenomenon, and Meakins has emphasized the same point in a clear manner. The latter states: "After the introduction of the sphygmomanometer our thoughts were slowly, ever so slowly, directed to the belief that a falling blood pressure and shock were synonymous. This is to some degree correct, except that the real condition of shock has been initiated and has travelled well along its course before this spectacular and exact physiological disturbance occurs. It should be considered as one of the later findings to indicate the condition. It occurs after all compensatory mechanisms to maintain the circulation have failed."

Before we can tell whether the blood pressure has fallen we must know what it was before the injury, and there should be no need to be reminded that the average blood pressure for a given age may not be the normal for the patient. There are cases, also, in which the failing circulation is shown more by the rise in diastolic than by the fall in systolic pressure. A low pulse pressure is probably a better indication of shock than a lowered systolic pressure. Even while the blood pressure remains high and before any serious symptoms have appeared shock may be present in a latent form. This *latent shock* corresponds to the time at which the compensatory vasoconstriction barely maintains the intravascular pressure; collapse may be precipitated by any further strain on the circulation—even turning the patient over may cause serious collapse. This clinical condition of latent shock must have been noted by most experienced surgeons, but there is still need to emphasize its occurrence and its deceptive nature.

In well-developed shock it will be agreed that its severity can best be measured by the amount of fall in blood pressure. If the systolic falls below 80 the condition is serious, and a pulse pressure of under 25 is of bad prognosis.

A small, weak, and rapid pulse is regarded as a necessary accompaniment of shock, yet it is now well recognized that serious shock may be present without any increase in the pulse rate. Many years ago Malcolm pointed out that the pulse rate might remain slow in shock but get gradually smaller until it failed altogether. Cuthbert Wallace in the last war noted a class of shocked men whose pulse remained slow, and the same phenomenon has been observed in the shocked air-raid casualties of this war by Kekwick and others. From the operating surgeon's point of view I have confirmed that shock and a lowered blood pressure may coexist with a slow pulse. The testimony of so many observers must convince everyone of the not uncommon occurrence of shock accompanied by a slow pulse.

A subnormal temperature is a common symptom of shock; indeed, I have come to regard this as one of the most constant features of the condition. Kinnaman's experiments on animals showed that a fall of temperature was a better guide to shock than a fall of blood pressure. Observation of air-raid casualties led Kekwick and his fellow workers to say that "the general temperature of all severe cases is invariably subnormal." The drop in temperature may be down to 95° or lower. This fall is not dependent upon the fall in blood pressure, for the metabolic processes of the body are not seriously affected until the blood pressure has fallen below 80 mm. Hg, whereas it is common to get a temperature of 95° F. in cases of immediate shock in which the blood pressure may be lowered but little or not at all. It may be that there is a definite inhibition of metabolic processes in shock. The immediate shock which may

* An abridgment of the Annual Oration to the Medical Society of London, delivered on May 8, 1944.

follow the perforation of a peptic ulcer frequently results in a temperature of 95° F. with pallor and cold extremities even though the blood pressure may be about normal or only lowered 10 or 15 mm. Hg. I think that those who deny that shock is often present in cases of perforated peptic ulcer take too narrow a view of the condition.

In cases of shock *the skin is usually cold and pale or cyanotic, and sweating is often profuse.* It is frequently the onset of these two symptoms which indicates to the surgeon that shock is present. If the cheek feels cold to the back of the observer's hand and if small beads of moisture appear on the forehead one knows that the patient on the operating table has had enough. Latent shock is becoming patent.

Mental dullness is a variable symptom in shock. It is quite true that many shocked patients are dull or stuporous, but others are mentally alert. It was said of the wounded at El Alamein that the mental state was usually one of alert interest even when the blood pressure was very low. It is difficult to account for these differences. It is important that we should diagnose shock before all the textbook symptoms have appeared. Shock may be indicated by a subnormal temperature with a low blood pressure although the pulse rate may be within the normal limits; it may reveal itself by pallor, sweating, subnormal temperature, and a small rapid pulse, while the blood pressure may remain approximately normal; and some cases occur in which the appearance and mental alertness give no indication of the serious state of the circulation which the sphygmomanometer may demonstrate. When a person has sustained injuries which are such as to be productive of shock one must assume its presence in a latent form even though no obvious symptoms are observed. The clinician must look at the whole picture before he pronounces judgment.

Pathology of Shock

Can the clinician throw any light on the vexed question of the pathology of shock? He is at a disadvantage with the experimental worker in that he cannot standardize his cases or furnish accurate controls; but clinical cases deal with human beings and usually present the important factor of pain in the causation of shock. Though Moon asserts that "conditions accompanied by prolonged and intolerable pain such as renal or biliary colic do not cause shock," most clinicians would consider this at the least too dogmatic a statement. Indeed, few clinicians could doubt that severe pain can initiate, accelerate, or aggravate shock.

Of the many theories put forward there are some which have little clinical support. Hyperventilation and acapnia could not apply to the majority of cases; acidosis is more likely to be the result than the cause of shock, and could not account for the immediate variety; the same remark could be made about the increase of blood potassium, which some, especially Scudder, regard as an important causative factor of shock. Fat embolism may produce symptoms almost indistinguishable from those of shock, but clinically it cannot be supported as a common cause of the condition. The suprarenal gland seems to play a part in causation of the symptoms, but as a rule those symptoms do not become evident until serious circulatory changes have already occurred.

All experimentalists agree that in cases of shock there is a serious diminution in the volume of blood in effective circulation, or, as Moon puts it, the volume of blood is relatively inadequate to fill the vessels. This fact is daily verified by the clinician, who constantly sees that a rapidly diminishing blood volume caused by severe haemorrhage will produce symptoms of shock, so that he is often in doubt whether he is dealing with haemorrhage or shock, or a mixture of both. Now, the volume of blood in effective circulation may be diminished in one or more of three ways: first, by gross internal or external haemorrhage; secondly, by escape of plasma or the fluid part of the blood directly into the tissues (as in trauma) or on to the surface (as in burns), or indirectly by the loss of fluid externally by the secretions (sweat) or excretions (cholera and dysentery); and, thirdly, by loss of blood to the effective circulation owing to its stagnation in dilated capillaries. This capillary dilatation might be induced by reflex nervous influence, by local trauma, or by the action of toxins on the capillary walls. The second and third methods would account for shock when unaccompanied by haemorrhage. It is indeed impossible to account for the different clinical types of shock without invoking both vasodilatation and transudation of fluid. Immediate shock must be the result of an immediate cause, and it is difficult to avoid the view that this is due to a nervous reflex producing vasodilatation in some part of the peripheral circulation—perhaps in the flaccid muscles, as suggested by Starling. How quickly the reflex may act is well seen in the speed with which the cheek may be mantled by a blush. The importance of this nervous reflex has been minimized by many, yet there is little doubt that strong nervous afferent stimuli will of themselves cause shock. Crile's view that this was due to exhaustion of the vasomotor centre is no longer tenable, but we must assume some inhibition or incoordination of this centre to account for the onset of symptoms of immediate shock.

Can the clinician help to decide the vexed question as to the way in which the volume of blood in effective circulation is diminished in secondary or delayed shock? Is it due to the loss of fluid into the tissues of the damaged part, as asserted by Blalock; does it depend partly upon a nervous reflex induced by the barrage of nervous impulses ascending from the injured part, as claimed by O'Shaughnessy and Slome; or may it be due to absorption from the injured part of substances which may injure the epithelium of the capillaries and permit serious transudation of fluid from the peripheral circulation? The clinician must surely answer that the whole truth does not lie with any one of these views. There is no doubt that much blood and much plasma are lost into the tissues of a traumatized area, but severe shock may occur in cases in which it would seem impossible for enough fluid to have escaped to cause serious symptoms; and there is no reason why constant and powerful afferent stimuli from the injured part should not reflexly contribute to shock as they appear to do in cases of immediate shock.

The view that toxins from the breaking down of tissues in the injured part might produce shock was widely held during the last war but gradually lost favour and received little experimental support. Recently, however, H. N. Green obtained a shock-producing substance from fresh voluntary muscle; he found that it was rapidly destroyed in the muscle after death and therefore might easily be missed. Given intravenously, this substance had a powerfully depressant action on the blood pressure. Clinically one can judge little as to the likelihood of shock-producing substances in muscle, but no one who has seen the occasional rapid development of shock following the relief of obstruction of a coil of small bowel will be likely to doubt that toxins absorbed from the small gut may occasionally have a shock-producing effect. How such a toxin may produce shock is a subject for speculation.

It is a matter of common clinical experience that some cases of shock fail to respond to treatment or respond only for a time. The pathological process goes so far that it cannot be reversed. Mere haemorrhage can be rapidly made good by transfusion, but with some cases of severe shock no amount of blood or other fluid infused into the vessels will maintain pressure: either the fluid constantly transudes from the vessels, or the vasomotor centre cannot maintain the pressure in the vessels.

Conclusion

Our clinical scrutiny of the pathology and symptoms of shock leads us to conclude, therefore, that there are several mechanisms which may produce the same result—failure of the peripheral circulation—and this failure may be indicated by several differing clinical pictures.

A fifth edition (1944) of the Orthoptists' Section of the *National Register of Medical Auxiliary Services* has now been published by the Board of Registration of Medical Auxiliaries, B.M.A. House, Tavistock Square, London, W.C.1. Orthoptists whose names are included have qualified according to a standard approved by the Board. The Board also maintains registers of physiotherapists, radiographers, dispensing opticians, chiropodists, and speech therapists; and a register of dietitians is being prepared. The Board is anxious that the fullest possible use shall be made of all sections of the *Register*, and copies of any or all sections will be supplied free to medical practitioners, hospitals, local authorities, etc., on application to the acting secretary.

THOUGHTS ON FOUR YEARS OF WAR SURGERY—1939 TO 1943

BY

Major-General PHILIP H. MITCHINER, C.B.E., T.D. M.D., M.S., F.R.C.S., D.Ch.(Hon.)

Honorary Surgeon to the King; Surgeon to St. Thomas's Hospital

It seems to me that one may now profitably look back and attempt to assess the value of the surgical procedures carried out during the four years of war. Enough time has elapsed and enough casualties have been treated, both over-seas and at home, to enable such an assessment to be made of whatever progress has been achieved, and to draw conclusions as to the value of the procedure adopted. In this respect it is a great pity that our surgeons and would-be surgeons had not acquainted themselves with the Official History of the War of 1914–18 concerning the Medical Services and the principles and practice during that period, or even troubled to read and digest one or other of the smaller books (Mitchiner and Cowell, 1941; Maingot and Slesinger, 1943) epitomizing the essentials of the hard surgical work and experience so admirably set forth in the Official History.

We hear a great deal of the improvement in the medical services in this war, but I cannot help feeling that, in spite of advanced surgical units, more rapid ground and aerial transport, and even congratulatory medical broadcasts, this progress is not so great as one would like to believe, especially in the prevention and control of sepsis; for the number of limbless patients landing from the Middle East and North Africa is by no means negligible. It would appear, therefore, that the self-congratulatory coma into which some of our "specialist" colleagues have allowed themselves to lapse is almost without justification. Possibly there is some failure to understand that while the ultimate aim of all surgery is the restoration of health, the primary objectives by which this aim is attained are essentially different in peace and in war. The objective in peacetime surgery is the eradication of disease; in war surgery it is the prevention and elimination of infection.

I propose here to deal seriatim with some of the surgical conditions more commonly seen and the types of wounds and injuries, and to indicate salient points in the treatment where progress has been made and where agreement has been reached.

Some Common Surgical Conditions

Minor septic skin conditions are frequent and by no means always yield readily to sulphanilamide powders and ointments. Indeed, a certain amount of residual dermatitis is seen after the application of sulphonamide drugs.

Whitlows, major and minor, are—as might be expected—not infrequently seen, especially among those whose work in machine shops, etc., exposes them to minor injuries of the fingers and hands. On the whole, progress of these cases is satisfactory, though many crippling results are seen. There is no doubt that the rule that all such cases should be admitted immediately to hospital—where they receive adequate and early treatment combined with immobilization—is productive of excellent results.

Appendicitis is often seen in its acute form, but presents no special problem. It is well known that 70% of pathological appendices are retrocaecal in position; the transition, therefore, from a frequently static life to the strenuous physical exertion in the Services probably accounts for the large number of these cases seen in the first few months.

Varicose veins form a large and important class of case. It cannot be stressed too strongly that unless pain, discomfort, or ulcers are present, no treatment—other than reassurance of the patient—is called for; while the injection of such cases in the presence of valvular incompetence without previous operation is useless and often productive of injection ulcers due to leakage.

Haemorrhoids are quite common in recruits, and occur at surprisingly young ages, so that I have no doubt that interference with personal sanitary routine consequent on Army life is a cause of this disease. While injection is excellent in its results if bleeding alone is present, under the stress of Army life I have no hesitation in advocating operative intervention (excision of the piles) in any case in which prolapse is present, irrespective of whether this is reducible by itself or not.

Perforated gastric and duodenal ulcers are also of common occurrence, and where prompt surgery is possible good results usually accrue. It is certainly inadvisable to do more than close the perforation.

Carcinoma of the Stomach and Rectum.—The number of cases seen in young men is rather alarming, and gives food for reflection.

Hernia cases, mainly inguinal, are often seen, and it would appear—judging from Army statistics—that some 10 to 15% of the male population of this country suffer from hernia. Alarming figures have been produced about the recurrence rate after herniotomy. Judging from my own personal experience, fully 50% of these "recurrent" herniae are the result of inadequate surgery at the original operation; in many cases congenital hernia sacs still exist *in toto*, while inadequate removal of the sac is also frequently observed. It cannot, in my opinion, be stressed too strongly that in a young male with good lower abdominal musculature no operation beyond complete removal of the hernial sac is advisable or necessary; repair operations in these cases will lead to deterioration of muscle and a tendency to recur because the natural barrier to herniation is interfered with. Furthermore, in cases with weak lower abdominal musculature, exercises for the strengthening of these muscles should be carried out under proper supervision for three to four weeks *before* operation. This procedure undoubtedly lessens the recurrence rate in such cases and makes many—otherwise quite unsuitable for operation—fit to undergo it with a reasonable chance of non-recurrence. Do not operate when for various reasons recurrence is obviously to be expected: operation in such cases helps neither patient nor surgeon.

Chronic epididymitis of dubious origin is quite frequent in the Forces. It usually affects young males aged 18 to 25, in whom there is often no history of sexual intercourse. Bacteriologically, the condition is not regarded as gonococcal in origin, but in some cases this organism has been obtained from the lesion, as have also staphylococci, streptococci, and *B. coli*, though in the majority the condition is culturally sterile. Clinically, there may be a thickened nodule, usually situated on the lobus minor or part of the epididymis, but the whole epididymis may be thickened and smooth. Congestive pain and some tender swelling of the testis are sometimes met with. Very seldom can a hydrocele be detected clinically—a point of some importance in the differential diagnosis. The condition is very generally unilateral only, but now and then the epididymes of both sides are almost simultaneously affected. The treatment is conservative, and the condition is of no immediate importance, except for the danger of misdiagnosis, which often results in an unnecessary orchidectomy. The differential diagnosis which apparently causes most misunderstanding is that of neoplasm, but the absence of any hydrocele makes one hesitate to diagnose a testicular neoplasm, and in such a case conservative treatment by supporting the testicle is always justifiable. The second alternative diagnosis which may be erroneously made is that of tuberculous epididymitis; but in the chronic condition under discussion there is a smooth-feeling epididymal swelling, and though the cord as a whole may be thickened there is never nodulation of the vas or of the epididymis, while rectal examination will reveal no abnormality in the prostate or vesicula seminalis.

Sciatica.—A large number of cases of sciatica, many of which come on suddenly after strain or accident, seem to be traumatic in origin. All such cases must be treated first by complete rest for 14 days, when, if pain occurs on leaving bed, they should be treated in a plaster-of-Paris bed for 6 to 8 weeks, and operation for the excision of the herniated nucleus pulposus undertaken only in patients feeling pain when they move about after leaving the plaster-of-Paris bed. Further delay in surgical intervention is deleterious, whereas the results of operation are usually most satisfactory, and many of the patients are able to return to full duty.

Operations for Internal Derangement of the Knee.—From conversations with many surgeons and medical officers I gather a general impression that the results of operation for this

condition are frequently and rather unexpectedly disappointing, both in the long time such patients remain in hospital after operation and from the fact that apparently only about one-third are restored to full Service duty. A careful investigation into these facts by Hedley Whyte shows that of 1,100-odd patients 50% returned in Category A1, after an average stay in hospital and convalescent depot (for rehabilitation) of from 80 to 100 days, according to whether the treatment was given in a military or an E.M.S. institution. In the remaining 50% down-grading had to be carried out in a large proportion of cases. Thus it appears that results of operation for internal derangement of the knee are statistically better than the general opinion suggests, but it must be remembered that those graded A1 may not have been able to carry out their full duty on return to their unit. Anyway, perfection has obviously not yet been reached. It is for consideration, therefore, whether the complete removal of the meniscus, so generally practised by my orthopaedic colleagues, is not a rather too drastic operation, and whether a return to the removal of the damaged part of the cartilage alone would not be advantageous.

Tonsillectomies and operations on the nasal septum undoubtedly constitute scalps for the operating surgeons, but how often do they make the patient any more fit for full duty in the rough and tumble of Service life?

Broken Hypodermic Needles.—I would offer a word of advice to my medical and dental colleagues on the subject of treatment of broken hypodermic needles within the human body. It must be remembered that operation should be undertaken only after careful radiographs, stereoscopic if possible, have been obtained, and that any operation—whether successful or not—is certain to be followed by a painful scar, disability, and often suppuration, while not more than 1 in 500 of these broken pieces of steel causes subsequent trouble if left alone. It is therefore in most cases inadvisable to attempt any surgical intervention for the removal of a particle of a hypodermic needle left in the tissues, and the deeper this is situated the less advisable is operation.

Treatment of War Wounds

The outstanding problem of this war seems to me to lie in adequate and early surgery of the *slightly wounded* cases, which, after all, still constitute 60 to 70% of war wounds. It is surely economical and advantageous to the national effort that these men should be fit to return to the fighting line in as short a time as possible. I would suggest, therefore, the revision of our methods in this respect, so that precedence of treatment, with a view to securing early healing and prevention of infection, should be given to these more lightly wounded cases. It is furthermore necessary that they should be adequately dealt with by efficient surgeons as near the battle front as possible, and an early return to the front line ensured by active rehabilitation, mental and physical, in an atmosphere of battle.

In contrast to what was seen in the last war, when a large number of wounds were from bullets, those seen in the present war are mainly lacerated wounds of a severe type, and the mortality from these—as might be expected—is much higher. Indeed, in the bombing casualties of aerial warfare it would appear that some 50% of the patients die either as a result of the actual injury plus blast or very soon after from haemorrhage and shock due to the severity of the wound inflicted.

It follows, therefore, that in the treatment of wounds *resuscitation* plays an important part. This must be carried out early and consistently by the application of warmth, the giving of hot drinks and morphine, and the transfusion of serum or, better still, whole blood. The Blood Transfusion Service has undoubtedly played a great part in reducing the mortality from wounds of all types. At the same time, however, one cannot help feeling there is a tendency to over-evaluate blood transfusion to the detriment of older and simpler methods of resuscitation and wound treatment. Hot sweet fluids by mouth, warmth, and morphine are simpler methods of combating and preventing shock which are applicable under all conditions and by any first-aid worker or doctor, and, moreover, they frequently suffice to restore a patient without resort to blood transfusion, the injudicious administration of which is not free from risk of fatality.

It cannot be too strongly emphasized, in my opinion, that the risk of septic infection from administering blood on the field of battle and in the street during an air raid is extremely great, and I have no hesitation in saying that blood or serum should not be given intravenously further forward than the advanced dressing station on the field of battle, the sick-bay where this is functioning adequately in a ship, and the first-aid post during an air raid. Moreover, there is, I think, a tendency to give large quantities of blood unnecessarily and wastefully. As a general rule, one pint should be administered fairly rapidly in cases of haemorrhage, and a further pint or possibly two by drip method; in the case of shock without haemorrhage, plasma or whole blood should be given by drip method alone and not run in rapidly, otherwise the risk of pulmonary oedema is very real.

It has been universally agreed that thorough removal of all damaged tissues as soon as possible after the infliction of a wound is essential in securing rapid healing, preventing infection, and ensuring quick return of the patient to health and utility as a fighting unit. It is also agreed that excision need only involve a narrow margin (at most 1/4 in. of skin) but that all damaged muscle must be carefully removed until contractile tissue, the vessels of which are spurting and not oozing, is reached. Furthermore, when this treatment has been carried out and adequate drainage ensured from the most dependent part of the wound, no primary suture is to be contemplated.

Notwithstanding, cases in which success has followed primary suture are from time to time reported in the medical journals; no mention is ever made in these articles of the number of cases so treated by the author in which infection, disaster, loss of limb, and even death have resulted. Primary suture of all such cases cannot be condemned too strongly; secondary suture can often be carried out with safety in a few days.

These are no new principles to have been learned, though in many cases they have been arrived at after painstaking work on the part of the surgeons and considerable suffering, doubtless, on the part of many patients. All of them emanated from the practice of surgery not only in the war of 1914–18 but in earlier wars. Even the closed-plaster technique, now universally accepted as the best treatment for all types of wounds in the field subsequent on excision, had its devotees and advocates (admittedly few in number) in the war of 1914–18, and even in the Crimean War, though all credit is due to Trueta, who popularized it during the Spanish War.

The dusting of wounds with sulphanilamide (5 to 10 g.) is advisable, both as a first-aid measure prophylactically against septic infection and as a routine after the excision of all wounds. So used, the sulphanilamide is seldom harmful provided that ample fluid intake can be assured to the patient; but it must be remembered that even with the treatment here advised, and more often when packing the wound with a mass of sulphanilamide has been resorted to, severe, even fatal, complications have occurred.

Special Types of Wounds

Abdominal Wounds.—Here early and rapid surgery is essential if life is to be saved, and in spite of advanced surgical centres and rapidity of transport it would appear, from the writings of Gordon-Taylor and conversations with surgeons whom I have met, that the mortality is about 50%, as in the last war, where owing to the static trench warfare such cases were more easily and quickly transported to an operating centre. The mortality from abdomino-thoracic wounds is distressingly high, and indeed is likely so to remain.

Thoracic Wounds.—As in the last war, the surgery of haemothorax from a penetrating wound is conservative, or by aspiration alone where pressure would induce cyanosis and respiratory distress, while in the larger lacerated wounds first-aid and front-line treatment to effect closure is safest and best carried out in the majority of cases by the application of a large and efficient dressing rather than by front-line surgery of a hurried and unsatisfactory type.

Facio-maxillary Wounds.—These should be treated in conjunction with a dentist and a facio-maxillary surgeon; and here the amount of bruising and the extreme disfigurement may suggest that the damage is far more extensive than is really the

case. Excision must be reduced to a minimum, and mucous membrane should be sutured to skin in every case when the services of a facio-maxillary surgeon are not immediately available. If the wound has disrupted the symphysis menti and detached the tongue, the tendency of this organ to fall back and suffocate the patient must be counteracted by pulling it well forward and, if possible, transfixing the tip with a stitch which should be hooked round the ear, holding the tongue in that position. All such patients should be carried, or should walk, stooping forward, and be instructed to insert the index finger down the throat and press the tongue forward should difficulty in breathing arise. Tracheotomy should never be necessary in these cases.

Peripheral Nerve Injuries complicating Lacerated Wounds.—It is now generally agreed that attempts at primary suture involving extensive dissection of tissues in recent wounds, especially where infection is present, are injudicious, but in cases in which the ends of the nerve are cleanly cut and easily accessible, and suture can be carried out without tension, primary suture should be performed even if there is a risk of infection. The earlier a nerve is sutured after its division the quicker and more complete will be the recovery of function.

Injuries of the central nervous system call for no special comment except that no prolonged search for buried foreign bodies should ever be undertaken in the front line, while drainage of the meningeal cavity is at all costs to be avoided.

Vascular lesions involving the great vessels are as a rule rapidly fatal, but one or two cases of suture of these vessels, and even of the heart itself, have been successful. Here, as in the last war, empyema is a frequent, and sometimes fatal, complication.

Fractures

Both simple and compound fractures are probably greater in number in proportion to wounds than was the case in the last war. The outstanding fact in all fracture cases is the delay in union which is occurring as compared with that war. The official view is that this is due to the severity of the disrupting force and the complexity of the accident causing the injury. I cannot help thinking, however, that the greater and more drastic manipulation of fragments which is taking place in order to secure perfect anatomical position is in some ways responsible for the delay in union, and it is questionable whether such drastic methods of reduction are justified in view of this delay and the functional result ultimately obtained. It cannot be too strongly stressed that in compound fractures the early excision of the soft muscle tissues is of more importance than the meticulous replacing of the bony fragments to obtain perfect alignment. In those cases in which damage to the great vessels of a limb accompanies severe compound fracture with extensive laceration of muscles, it is still best to amputate promptly if the patient's life is to be saved, and this applies especially if, in addition, joints have been laid open into the wound.

In through-and-through joint wounds expectant treatment is often justifiable, but this should be accompanied always by immobilization of the limb and extension applied to keep the bony surfaces of the joint separate. Moreover, a careful watch must be kept for the first signs of clinical effusion occurring in the joint, while aspiration of any appreciable effusion is necessary daily to ensure the free circulation of synovial fluid within the joint cavity.

Amputations have frequently to be carried out, and even in this war it is a sound principle to amputate in the first instance, leaving as long a stump as possible below the joint above the site of amputation. Subsequent amputations should be performed only through the upper third of a leg, the lower third of the thigh, the lower third of the arm and forearm; but one cannot help feeling that Syme's amputation has been abandoned more at the behest of the instrument-maker than at the discretion of surgeons; for one can recall many Syme's amputations performed in the last war which enabled the patient not only to continue in Army service but to march many miles without undue fatigue or to the detriment of the amputation stump. It is essential that after-treatment of an amputation should be carried out and the limb fitted by those accustomed to the work, and it is an excellent thing that all such are now undertaken by the Ministry of Pensions, whose surgeons further ensure that amputees are taught to use their limbs properly.

Burns

It can be said truthfully that the treatment of burns has returned to chaos. It would appear that the Royal Navy, the Army, the Air Force, and the E.M.S. all have their own special problems, as the conditions under which these burns have to be treated differ considerably; the results obtained from the various methods are difficult to contrast, and it is therefore not easy to assess the value of any treatment except under special conditions. It is probable that the resulting chaos is due very largely to the inability—under war conditions—adequately to clean the burn and its surrounding tissues soon after its infliction. It is also probable that in many cases lack of experience contributes largely to the failure of certain lines of treatment which are successful elsewhere. Be that as it may, undoubtedly much work has to be done and a great deal has to be learned about the treatment of burns.

Generally, it can be laid down that the first-aid treatment of burns, certainly of severe ones, is a life-saving measure, and though the official Army treatment is vaseline or vaseline and a sulphonamide, one cannot help feeling that the method of tanning advocated as a first-aid measure by the Royal Navy has its place in the saving of life in severe burns. Sulphonamides dusted on burns in the early stages are liable, unless fluid is given in large doses, to be followed by severe toxic complications. Intravenous serum transfusion should be started early and be continued for prolonged periods by the drip method in all cases of severe burns, while it is an established fact that early skin-grafting, even in the presence of infection of a mild type, greatly facilitates healing and lessens scarring.

Blast

The results of blast are far more severe than those seen during the last war, and, owing to bombing, many more cases are coming under notice. Much has been written about the effect of this destructive element both on land and as a result of underwater injuries. Many fatalities have occurred, and the damage inflicted is in the nature of extensive haemorrhage and, in some cases, rupture of the lung and intestine. Treatment, except in those cases of hollow viscera or haemorrhage indicating operation, is rest and avoidance of movement as much as circumstances permit. It is far better to move such a patient well back in the early stages than submit him to several subsequent short moves.

Wound Infections

Apart from travelling with an extremely high velocity, fragments of shell and splinters of bomb are smoking hot and often cauterize the flesh at the point of entry, which place may be extremely difficult to detect from its small size and small burned area. Moreover, such projectiles are inclined to cut the clothes cleanly, and the tendency to force clothing material into the tissues is extremely small compared with that seen in the last war. For these reasons, surely infection should be less severe than in previous wars, but this does not mean that it is not to be both expected and counteracted in every wound.

Sulphonamides.—Infection of wounds has been much modified and the terror greatly reduced by the introduction and early use of the sulphonamide group of drugs. It is not suitable in an article of this nature to enter into details of such treatment, particulars of which can be obtained from the Medical Research Council War Memorandum (1943) and the works of Colebrook and other authors. I must, however, sound a note of warning against the excessive and indiscriminate use of these drugs, which are by no means without risk. Many patients show an idiosyncrasy to drugs of this group, while certain organisms react only to certain types of them. It is essential, therefore, that treatment be carried out in close co-operation with a bacteriologist. Moreover, any dosage over 15 g. applied externally may produce toxic and even fatal results, even in cases where the fluid intake can be kept up by both intravenous and oral administration for two to three days subsequent to the use of the sulphonamide. In this respect attention is drawn to the value of the simple test advocated by Fuller (1942), which is accurate enough to serve as a guide that the requisite blood

concentration of sulphonamide has been reached. Remember that the sulphonamides, far from constituting a panacea for all infections, may be actually deleterious and even dangerous, and as a general rule their use should be discontinued promptly in cases which show no constitutional improvement or fall of temperature in 48 hours.

Penicillin.—It seems certain that in its effects against sepsis due to certain organisms penicillin far surpasses all other antiseptics. It is non-toxic to the patient, and one can assert confidently that its future use is likely to be extensive and very successful. Its action is most dramatic on the staphylococcus and gonococcus, and it is not without effect, especially in combination with sulphathiazole, on most streptococci, meningococci, and some types of pneumococci, as well as the clostridia of gas gangrene, *B. tetani*, and anthrax and other Gram-positive bacilli. It has, however, no potency against, and is indeed apparently destroyed by, the Gram-negative bacilli of the *B. coli-typhosus* group. It is obvious from this fact that the drug can be used only in close association with a bacteriologist unless discredit is to ensue. Furthermore, from the surgeon's point of view it would appear that its use will entail a drastic revision of surgery of wounds; for penicillin acts at its best in a puddle of pus, and in cases in which it is applied locally—the most economical and satisfactory way of using it in wound surgery—it seems that drainage will have to be avoided.

Tetanus.—Thanks to the prophylactic and regular use of tetanus toxoid, and the possibly unnecessary prophylactic injection of antitetanus serum in the case of severe wounds—perhaps only unnecessary in those cases where three or more doses of tetanus toxoid have been administered—tetanus is a disease of which we have seen little in this war, and in the few cases which have occurred it has been only of a mild and often non-fatal type.

Gas gangrene has also occurred less frequently and on the whole less virulently than in the last war, possibly because of the nature of the country in which most of the fighting has taken place. To be of prophylactic value, anti-gas-gangrene serum and sulphonamides must be employed immediately after the infliction of the wound; they seem to have little value if employed later and next to no value if the disease is established. It cannot be too strongly emphasized that adequate excision (especially of all damaged muscle) of a wound in the early stages after its infliction is the best prophylactic against all types of this infection. Credit is due to J. D. MacLennan (1943) for his excellent article on the clinical characteristics of the infections resulting from the various anaerobic clostridia and streptococci.

Rehabilitation

Rehabilitation is a new word to many of the profession, who have been all too prone to patch up a case in hospital and take no further interest in its progress or to ascertain whether the patient is fit to return as a working unit in the national effort. The shortage of man-power has directed attention to the necessity for restoring every patient possible to full working capacity in the shortest time. To this end rehabilitation has appeared—indeed, become popularized—and has come to stay. Active rather than passive exercise, mental occupation, and stimulus play an important part in the return of the patient to full work, and it cannot be too strongly emphasized that the psychological outlook of every patient is as important as his physical re-education. The psychiatrists, by-product of the necessities of the war, have come in for much undeserved—and some deserved—criticism, but their value in the war effort is undoubted, and their future as a specialist branch of the profession is assured.

Venereal Disease

A word should be said of the treatment of venereal disease. The introduction of sulphonamides has so simplified both the cure and the time taken to effect it in the case of gonorrhoea that the vast majority of cases of this disease can be treated safely and satisfactorily as out-patients and a cure be assured in a few days.

Syphilis continues to be a problem in regard to treatment, and the large number of cases of jaundice following the administration of arsenical compounds show that none of these drugs is ideal in the treatment of this distressing malady; while the conditions consequent upon war and the movement of the bulk of the population make it difficult to follow up and to administer efficient treatment to many of the infected cases—a fact which must have a deleterious effect on the health of members of the community born and yet to come.

The war has produced a very authentic and connected description of lymphogranuloma inguinale, for which we are indebted to Stammers (1943).

Anaesthesia

I would like to add a word in praise of the anaesthetists, who are doing a magnificent work to assist their surgical colleagues in all parts of the world. Many forms of anaesthesia are practised and advocated, and on the whole the majority are satisfactory in the experience of the surgeons for whom and of the patients to whom they are given.

Conclusions

An endeavour has here been made to assess the value of surgery in the past four years of war and to draw such conclusions as may be possible as to where ground has been gained, or possibly lost, in comparison with surgery as practised in the war of 1914–18. It would appear, by and large, that surgical procedure has not altered greatly, though the type of wound has altered somewhat owing to the use of more lethal explosives and missiles.

On the whole it seems that my surgical colleagues have reason to congratulate themselves on the work they are doing, but have no grounds for halting or feeling complacent in this world-wide struggle, not yet concluded.

I wish to thank my colleagues on the staffs of many E.M.S., Naval, Military, R.A.F., and Allied hospitals, who have received me with much kindness and courtesy on the many occasions on which I have visited them.

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NEUROPSYCHIATRY AT A ROYAL AIR FORCE CENTRE

AN ANALYSIS OF 2,000 CASES

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This centre is situated in a large R.A.F. station and also provides neuropsychiatric out-patient service on a regional basis for R.A.F. and W.A.A.F. personnel from surrounding stations of Technical Training, Flying Training, and Operational Commands, together with the associated R.A.F. hospitals within the area of its regional distribution. The proportion of air-crew cases coming direct from Operational Commands is low, being less than 15% of our series.

Hospital Facilities

Beds are available at the Centre for the observation of cases of psychoneurosis, psychosis, and psychopathic conduct disorder before disposal by return to duty, admission to hospital, or invaliding. Facilities are also available at neighbouring R.A.F. hospitals for in-patient investigation of organic neurological cases, while these hospitals are visited regularly for consultation, as many cases are admitted to them with symptoms which require psychiatric investigation before making a psychotherapeutic approach to their problems. Of such cases, the nervous dyspepsias, and the indefinite headaches vaguely attributed to ear, nose, and throat conditions, are numerous enough to be worthy of special mention.

An adjacent R.A.F. convalescent depot provides a large number of patients with psychoneurotic manifestations, either of a constitutional type or, more often, of a type complicating convalescence from physical injury or disease. In conjunction with the valuable physical methods of rehabilitation employed, psychiatric supervision and psychotherapy of a simple type have proved a valuable factor in shortening the period of incapacity and hastening return to duty.

Recruits Centres

A considerable part of the work is concerned with recruits centres, where the primary problems are those of diagnosis and selection as regards Service trades, the recasting and recategorization of misfits, and the exercise of an advisory function in respect of psychologically adverse aspects of training, together with the more difficult problem of correct disposal. This may be defined as placing the individual in the highest medical category in which he is capable of giving efficient service, and in recommending his employment in a trade in which he is most likely to be of the greatest value. The latter requirements are neither easy to fulfil nor indeed always possible, but nevertheless much can be done in this direction. It is to be emphasized, however, that only cases selected by Unit Medical Officers are referred to the neuropsychiatrist, and nothing in the shape of a routine examination of all cases is undertaken.

Analysis of Case Material

The 2,000 cases here discussed represent the work carried out at this centre in a period of just over twelve months ending in Aug., 1943. They are consecutive cases, and are new ones seen at the first interview. Cases attending on subsequent occasions for investigation or treatment have not been included.

TABLE I.—*Analysis of 2,000 New Cases*

Diagnosis	No. of Cases
Psychoneurosis	1,366
Organic nervous disease	439
Mental defect	62
Psychosis	45
Malingering	2
Miscellaneous medical conditions	56
No evidence of significant neuropsychiatric disorder	30

TABLE II.—*Analysis of 1,366 Cases of Psychoneurosis*

Diagnosis	No. of Cases
Affective disorder, including anxiety states, reactive depressions, and fatigue syndromes	739
Hysteria	330
Obsessive—ruminative and compulsive states	7
Psychopathic states	290

TABLE III.—*Analysis of 45 Cases of Psychosis*

Reaction Type		No. of Cases
Schizophrenic		23
Manic-depressive		11
Paranoid		3
Organic	Toxic-confusional	5
	Traumatic	2
	Presenile	1

TABLE IV.—*Analysis of 439 Cases of Organic Nervous Disease*

Diagnosis	No. of Cases	Diagnosis	No. of Cases
Head injuries: acute	37	Peripheral nerve lesions	7
" sequelae	88	Post-encephalitic Parkinsonism	6
Nocturnal enuresis	63	Poliomyelitis: sequelae	5
Epilepsy	39	Cerebral thrombosis	5
Sequelae of meningitis	36	Narcolepsy	4
Migraine	28	Subarachnoid haemorrhage	4
Sciatica	21	Encephalomyelitis	4
Bell's palsy	13	Cerebral tumour	3
Brachial neuritis	11	Adie's syndrome	3
Disseminated sclerosis	10	Other neurological and miscellaneous conditions, including air sickness and non-epileptic loss of consciousness	43
Neurosyphilis	9		

Of the sequelae of meningitis 33 cases followed meningococcal and one pneumococcal meningitis, and two followed benign lymphocytic choriomeningitis; of the four cases of encephalomyelitis, two followed primary vaccination, one mumps, and one was unassociated with recognized preceding illness. Two of the peripheral nerve lesions (inferior gluteal and partial sciatic syndromes) followed the intramuscular injection of sulphapyridine into the buttock, and were slow to resolve. The cerebral tumours were respectively frontal glioma, parasagittal meningioma, and colloid cyst of the third ventricle. Among the 22 other neurological cases were included cases of subacute combined degeneration, amyotrophic lateral sclerosis, Little's disease, paraplegia from Pott's disease, spinal arachnoiditis, optic atrophy, and occupational cramp.

Discussion

Table IV is self-explanatory. It would seem that few fully developed neurological syndromes now evade the Recruiting Boards; the cases which slip through are those in which diagnosis depends chiefly or entirely upon the history, as in epilepsy and migraine. This applies also to many of the high-grade feeble-minded who may appear normal and plausible enough on superficial examination. Most of the cases of systemic nervous disease occurred in the older age groups, and were referred largely from recruiting centres after only a short period of service. One difficulty in organic diagnosis is the fact that cases are usually referred at a very early stage in their development—not infrequently before the appearance of any unequivocal organic signs. In some cases it is difficult, on the evidence available, to reach the clear-cut decisions as to diagnosis and disposal demanded by Service conditions: this is perhaps particularly so in the case of epilepsy without eye-witness accounts of an attack, where diagnosis may depend on a careful assessment of probabilities.

A lesson learned from the full routine neurological examination of large numbers of cases is that minor organic abnormalities may be found in the complete absence of symptoms or significant aetiological clues.

A notable and apparently increasing tendency is evident in the reference of patients suffering from sciatica with a diagnosis of prolapsed intervertebral disk. Such a diagnosis is sometimes made in cases of first attacks of recent onset without significant signs, a convincing traumatic history, or an adequate trial of conservative treatment, and it may lead to the invaliding of an airman who might, by patient medical treatment, be restored to full effectiveness. In our experience few cases of this type do not respond to rest in bed, and chronic cases are often those in which the exhausted patience of the doctor and the patient has led to premature resumption of activity. The fact that absence of the ankle-jerk may persist for months or years after an attack of sciatica, and that such a finding may be associated with hysterical perpetuation of symptoms, should also be more generally appreciated. Another noteworthy feature among these organic cases is the high incidence of brachial neuritis. The danger of intramuscular injection of sulphapyridine in the neighbourhood of important nerves is also illustrated.

The majority of the cases of mental defect were referred because of hysterical symptoms, frequently bizarre and baffling to the organically minded investigator, or because of general ineffectiveness or petty disciplinary offences. In the assessment and disposal of these cases the executive report on the airman's efficiency and usefulness which is forwarded with every neuropsychiatric case referred is often invaluable.

Predisposition.—A significant past history indicating predisposition was a positive feature in over 80% of 250 unsorted cases of psychological disorder in which routine case records were analysed in retrospect. Significant findings in the history of these cases were neurotic character-traits (70%), manifest psychoneurotic symptoms leading to medical attention in civil life (62%), chronic invalidism (39%), and previous "nervous breakdowns" (28%). There was a positive family history of psychological disorder in 51% of cases, 17% coming from broken homes, while 29% showed a poor civil work record and 15% significant educational backwardness.

Predominance of Affective Disorder.—A striking feature of the 1,366 cases of psychoneurosis is the high proportion diagnostically grouped as "affective disorder" (54% of all psychoneuroses, 37% of all cases seen). In the production of these conditions we would stress the importance of predisposition, and of boredom, monotony, and separation from home, rather than real or anticipated exposure to physical danger.

Recognition of Psychosomatic Illness

Another feature of these cases of psychological disorder is the frequency with which extensive and repeated investigation for the presence of organic disease, and not infrequently lengthy and fruitless courses of treatment directed to ill-defined organic conditions, had been carried out for psychosomatic complaints, the origin of which in personality difficulties rapidly became apparent on the taking of a psychiatric case history. This had occurred more frequently in civilian life than in the Service.

We would particularly stress two points. First, the importance of a personality assessment before carrying out surgical treatment not urgently indicated. The surgery of election for minor disabilities under Service conditions, performed on those severely disposed to neurosis, especially when they are unwilling conscripts, or on the high-grade feeble-minded, is more than usually conducive to hysterical sequelae, and this appears to be particularly frequent when spinal anaesthesia is used. One case of gross hysterical ataxia, unusually resistant to treatment, dated from casual statements overheard under such conditions in the highly suggestible atmosphere of the operating theatre. Indeed, the whole question of what is said to and in front of these patients is extremely important and often neglected. To tell a highly suggestible neurotic that there is a "brain adhesion," "a block in the cerebrospinal fluid," or "a tired heart" is apt to fix his symptoms, in some cases possibly for life, and this type of diagnosis appears to have been made in many of our cases in the complete absence of signs of organic disease, in order to satisfy the demand made by the patient and by the doctor for some physical explanation of his condition.

On the positive side we would stress the importance of psychological preparation for surgery—of a clear, simple, and reassuring statement of what the position is, what it is proposed to do, and what result can be expected. Surgical intervention may be the beginning of years of neurosis, more disabling than the condition which it sets out to relieve: this could often be avoided by explanation and reassurance, which would pay a rich dividend in functional results.

Malingering

The small number of cases of flagrant malingering is noteworthy, but exaggeration of subjective symptoms is relatively common, and is difficult of substantiation in a court of law, whether military or civil, while it is commonly associated with constitutional instability or psychopathy of such degree as to render the individual of little value from the Service point of view. In our experience the genuine, deliberately calculating malingerer presents a clinical picture of symptoms without signs, ruthless egocentricity with little sense of social responsibility, little evidence of emotional instability, and an absence of recognizable indications of psychoneurosis, psychosis, or intellectual defect. In these qualities such a malingerer is not far removed from his next of psychopathic kin, the more intelligent criminal of the non-violent type.

In many of our cases of psychopathic conduct disorder a fabricative component has been recognized, and, while the psychopathy has been recorded for future guidance, the man has been returned to duty for executive action. Such cases have therefore been shown under the heading of "psychopathic states" rather than as malingerers.

Recommendations for Disposal

Of the 2,000 patients 71% were returned to duty with or without change of employment or category, 14% admitted to hospital, and 15% invalided. Table V indicates the comparative disposals of R.A.F. and W.A.A.F. organic and functional cases:

TABLE V.—*Comparative Disposals*

	R.A.F. (1,765 Cases)		W.A.A.F. (235 Cases)	
	Functional (1,352 Cases)	Organic (413 Cases)	Functional (209 Cases)	Organic (26 Cases)
	%	%	%	%
Duty ..	74	75	42	46
Hospitalized	16	12·5	10	18
Invalided ..	10	12·5	48	36

The considerable difference in invaliding percentages between R.A.F. and W.A.A.F. personnel in both groups is in our opinion principally due to the greater difficulty in adaptation to Service conditions experienced by women, whose cases reveal an appreciably higher degree of constitutional emotional instability and neurotic predisposition. This is shown particularly in such factors as broken homes, unduly strong attachments to home and parents, and previous evidence of lack of persistence and of social adaptation. Many are solitary, shy individuals, living at home, with few external interests, addicted to knitting and sewing, and dependent on maternal decisions. A considerable proportion have never had a civilian job. This group is a particularly unfavourable one, and tends to break down readily under conditions of community regimentation.

The tendency for women to form strong emotional attachments, either hetero- or homo-sexual, is also a potent contributory factor, and the exigencies of the Service—e.g., posting—frequently lead to neurotic conflicts, with much emotional disturbance in the temperamentally unstable, resulting in psychiatric investigation and sometimes in invaliding. A further large group in W.A.A.F. personnel comprises those referred as "problem cases." The majority are psychopathic states of the aggressive group, and of a mild type, more or less antisocial in behaviour, and episodically disturbed in conduct, usually in the face of relatively minor difficulties.

The problem of temperamental instability and psychopathy in the Service is complex, but is more particularly so in the W.A.A.F. because of the lack of appropriate disciplinary measures to deal effectively with cases of conduct disorder in the merely unstable, as opposed to the truly aggressive antisocial psychopath, on whom punishment has but little deterrent effect. This latter group is a small one.

There are, of course, numerous other contributory factors, but those given in broad outline above are the most frequent in occurrence and explain the difference in invaliding rates; for it is useless to return such women to duty, whereas men can and frequently do make a satisfactory adaptation.

Airmen's Convalescent Depot

During the period under review 224 new cases were seen from this depot. Of these, 79% were returned to duty, 16% transferred to hospital, and 5% invalided. This figure does not include 112 cases at A.C.D. which had been seen beforehand by one of us and recommended for admission for treatment.

The new cases fall into two large groups: (1) those admitted as psychosomatic cases; (2) those admitted as medical, surgical, or orthopaedic cases, in which subsequently the psychosomatic component was shown to be of primary importance. The latter group includes psychoneurotic manifestations occurring during convalescence from physical illness or injury.

Every new case is reviewed completely and anew from the neuropsychiatric angle, whether or not the patient has been seen by a neuropsychiatrist elsewhere. This is essential, since in many cases it is necessary to counter previous medical opinions suggesting organic disease, and the patient is more likely to appreciate an alternative point of view if his story has been listened to with patience and attention. Any doubtful point of organic pathology is at once investigated, the authority of the appropriate specialist being freely invoked if necessary. Having cleared the organic ground, a direct approach is made in the form of evaluation of symptoms, with explanation and reassurance couched in the simplest of language, coupled with free suggestion, given with optimism and conviction. This simple form of superficial psychotherapy is reinforced by a system of carefully graduated exercises, games, and physical training. Occupational therapy is fully utilized, and has proved most beneficial and popular. After the first visit the patient is seen once a week by the psychiatrist, who continues to encourage him to persevere with physical exercise, and helps in solving his personal problems.

The process of rehabilitation is much assisted by the general atmosphere of the depot, where the patient sees other badly damaged men being restored to functional efficiency. In his games he develops a team spirit, helped by the fact that all ranks are treated alike. Apart from the physical side, an important factor in promoting recovery, particularly in those who have recently joined, is the relaxation of the Service

atmosphere; thus the airman lives in civilian hotels, and after the day's programme of rehabilitation he is free to go out, untrammelled by sentries, camp gates, and the like, the only restriction being the requirement to return to his billet by 10.30 p.m. Late passes and sleeping-out passes are, however, available in reasonable numbers.

A valuable adjunct to the method of rehabilitation is provided by the attitude of the physical training instructors, who, by their continued enthusiasm and high morale, form models of deportment and zest; and these qualities are reflected to a surprising degree by members of their classes.

In this atmosphere superficial psychotherapy is in many cases sufficient to clear up even chronic psychosomatic symptoms. A certain proportion do not improve because of chronicity, previous firm fixation of symptoms, lack of co-operation, or an obvious motivation in the form of a wish to leave the Service. Severe anxiety states, depressions, and obsessional states do not do well at A.C.D.; they require more prolonged and intensive psychotherapeutic measures, and conditions of life which a Service convalescent depot cannot be expected to provide. From this section of unsuitable cases are drawn those for hospital treatment or for invaliding. The rate for return to duty is somewhat higher than that for the whole series of cases analysed, despite the fact that the A.C.D. cases are of a more severe type.

We are convinced that many patients returned to duty after a period of rehabilitation at A.C.D. would otherwise have been invalided or have remained ineffective for a very prolonged period, and that such results indicate the urgent need for similar facilities in relation to the civilian general hospital. In such circumstances both the patient convalescent from severe illness and the chronic neurotic can be handled under optimum conditions and a partial solution, at any rate, of the out-patient problem be achieved. In our opinion psychiatric facilities are an integral part of such a scheme.

Summary

Two thousand consecutive cases seen at an R.A.F. neuropsychiatric centre are analysed into diagnostic groups, and the organic and psychological cases briefly discussed. Among the points raised are the high incidence of affective disorders and the role of predisposition, the importance of psychological factors in surgical treatment, psychiatric aspects of malingering, and the value of rehabilitation in psychoneurotic cases.

We wish to thank Air Vice-Marshal C. P. Symonds, C.B., Air Commodore H. L. Burton, and Air Commodore R. D. Gillespie for advice in the preparation of this paper, and we are indebted to Group Captain P. H. Young, senior medical officer of the station, for help and encouragement.

SPONTANEOUS RENAL APOPLEXY WITH RESUSCITATION AFTER CARDIAC ARREST

BY

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Very few cases of spontaneous renal apoplexy are to be found in the literature. Two years ago George Crile jun. reported three cases, and at that time a survey of the literature revealed 17 instances. We wish to add one which came to the surgical service of one of us (S. L. G.). It is of additional interest because of the cardiac arrest during operation, which was relieved by an intracardiac transfusion of 300 c.cm. of blood followed by 500 c.cm. of saline solution.

We consider intracardiac or intraventricular transfusion worthy of trial when all other avenues of intravenous infusion are ruled out because of collapse. Such cases may be encountered in collecting stations, casualty wards, or emergency rooms of civilian or military hospitals.

Case Report

In May, 1939, a woman aged 36 was seized with severe abdominal pain in the right upper quadrant while sitting in a cinema. The pain came on suddenly, just after she started to laugh at an amusing episode in the film. She became weak and was taken home by taxi. A medical man was called in. He stated that she had a large tumefaction in the right upper quadrant of the abdomen. The area was rigid. She had vomited on several occasions. Morphine was given and local ice packs were applied.

About 16 hours after the onset of the pain she was examined by one of us and admitted to hospital. The examination disclosed generalized abdominal tenderness and the presence of a large tumour mass in the right side of the abdomen, which extended from the right subcostal region to the iliac fossa. The right rectus and the right lumbar muscles were rigid. Kernig's sign was positive on the right. Her face was pale and there was evidence of "air hunger."

Laboratory examination revealed 2,000,000 red cells, 12,000 white cells, and 50% Hb. The urine contained an occasional hyaline and granular cast, a few red cells, and albumin +. The patient's temperature on admission was 97.6° F., her pulse 120–130, and blood pressure 80/50. After treatment of shock and observing the patient for 14 hours an operation was performed. A right pararectus incision was made; the peritoneal cavity did not contain free fluid. A large dark mass arose from Morrison's fossa and could be seen to extend caudally to the right iliac fossa, thus completely obliterating the right paracolic gutter. The posterior peritoneum was incised and many black clots evacuated. There was slight oozing in the region of the right renal pelvis. The right renal artery was not identified.

At this juncture the anaesthetist announced that the patient had died. The operator (S. L. G.) massaged the heart through the diaphragm and was able to restore and maintain the heart-beat as long as the massage was applied. Nikethamide (coramine) and metrazol were administered intracardially by means of a Pitkin spinal needle. These injections, plus massage, resulted in cardiac activity as manifested by a to-and-fro movement of the visible part of the needle.

Attempts to transfuse blood via the venae comitantes of the brachial artery and saphenous veins were unsuccessful. The situation was critical, and since an entrance to the patient's circulation was established by the Pitkin needle, the Baxter bottle containing the blood for transfusion was attached to this needle. 300 c.cm. of blood was infused by this route, followed by 500 c.cm. of intravenous saline. The patient's condition improved and the heart began to beat again; the wound was packed and closed in layers, and the needle removed.

The patient died 18 hours after operation and 48 hours after the onset of spontaneous renal apoplexy, from a secondary or recurrent right renal haemorrhage.

Conclusion

The apoplexy was the result of a long-standing malignant hypertensive cardio-renal disease, as brought out by the patient's history, the episode narrated above, and the post-mortem findings of contracted kidneys, nephrosis, and atheromatous degeneration of the aorta and renal arteries.

Summary

A case of spontaneous renal apoplexy due to malignant hypertensive cardio-renal disease has been presented.

The patient's heart stopped during operation.

Cardiac resuscitation was accomplished by cardiac massage, intracardiac injection of stimulants, and intraventricular infusion of blood and saline.

Life was restored for a period of 18 hours after the operation.

Death ensued from secondary or recurrent right renal haemorrhage.

Perusal of the literature does not disclose any previous reported case of intracardiac or intraventricular infusion.

Relapsing fever is one of the infections that follow in the path of war. For example, it is estimated that in the year after the 1914–18 war over a million and a half persons in European Russia were affected with this disease. In the big epidemics the louse has been the vector of the infecting spirochaete, first observed by Obermeier in the blood of a patient in 1873. Various species of ornithodorus tics are known to transmit the disease in many parts of the world. Among normal reservoirs of the infection are several species of rodents, foxes, dogs, and monkeys. Relapsing fever can be satisfactorily treated with arsenic, but F. R. Heilman and W. E. Herrell (*Proc. Mayo Clin.*, 1943, **18**, 457) have demonstrated experimentally in mice that the disease can be brought under control with penicillin.

GONORRHOEA IN NORTH AFRICA AND THE CENTRAL MEDITERRANEAN

BY

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During recent years the lay public, and even members of the medical profession, have come to look upon gonorrhoea as a condition in which "one just takes some tablets for a few days" and all is well. The danger of such complacency has become increasingly obvious as the campaign has progressed through North Africa into the Latin countries.

While the Army was situated in Algeria and Tunisia the response to chemotherapy ran a course similar to that experienced in the United Kingdom, and failures were usually attributable to irregularity of the treatment, insufficient fluid intake through shortage of drinking-water in very hot conditions, and the hardships of battle resulting in delay in starting treatment. In the last category metastatic complications, such as gonococcal arthritis, were common. Throughout the first months of the campaign sulphapyridine was the drug in general use, administered as a course of 20 to 30 g. in 5 days. Towards the end of the North African phase sulphathiazole, 10 g. in 2 days, was introduced. This was given in forward medical units, so far as was possible, to obviate evacuation. While the response to this form of therapy was not as good as the 90% claimed in the United Kingdom, the 70 to 75% satisfactory results materially conserved man-power and hospital accommodation.

A very different picture presented itself when the campaigns in Sicily and Italy began. Forward treatment of gonorrhoea failed almost completely, and as at first the venereal diseases expansions were still with general hospitals in North Africa, these unsuccessful cases had to be evacuated, and filled the beds of the expansions, which were thus retarded in their movement forward.

A well-staffed and experienced V.D. treatment centre opened in Sicily and, in conjunction with units of field ambulances, endeavoured to stop the need for evacuation to general hospitals. It was immediately evident that short courses of chemotherapy were useless. Less than 25% were responding, and of these a large proportion relapsed on the way back to rejoin their units. Dosage was increased to 25 to 30 g. of sulphathiazole or sulphapyridine in 4 to 5 days, there being apparently little to choose between the drugs. Second courses were necessary in 70 to 80% of cases after 5 to 7 days' irrigation treatment, and as the battle progressed, with lengthening lines of evacuation, more chemotherapy was given, till large numbers of men reached the main V.D. units still showing gonococci in their discharges after receiving as much as 130 g. of various sulphonamides.

In these early days there was some irregularity in the administration of the tablets, but even when this was rectified the same dismal picture of failure continued. The economic conditions in Sicily and Italy which drove women to prostitute themselves for food and chocolate constituted a menace never encountered by our troops before, and the incidence of venereal diseases increased.

As the campaign has progressed northwards in Italy and expert venereal diseases treatment units have moved forward there has been a slight improvement in the picture, but considerably less than 50% of acute gonorrhoea cases respond to an initial course of 25 to 30 g. of sulphathiazole, and relapses are common. Irrigations for the succeeding 5 to 7 days, followed by a second course of sulphapyridine or sulphadiazine, have proved successful in a few cases, but resort to pyrexial therapy by means of intravenous T.A.B. vaccine during this second course of chemotherapy has become almost a necessity. Some success has followed the use of the standard Army gonococcal vaccine.

Gonorrhoea has become a disease requiring a long stay in hospital. Clinically there is a profuse urethral discharge, containing large numbers of gonococci, persisting for many weeks despite the treatment described. Involvement of the posterior urethra occurs early, with considerable incidence of prostatitis and epididymitis. Epididymitis often occurs when the patient has been in hospital for several weeks under optimum conditions of rest and treatment, and is usually severe. Metastatic conditions such as gonococcal arthritis and iritis are rare. It has been freely suggested that we have met a sulphonamide-resistant gonococcus, due to inadequate treatment of the civilian women, but the shortage of the drugs in Sicily and Italy and the complete lack of treatment of infected civilians over a long period make this idea somewhat unacceptable. The restoration of adequate civilian treatment under the auspices of A.M.G. is progressing rapidly, but it is too early to evaluate results. Rather does it appear that the gonococcus now encountered is a non-reactor to chemotherapy and, further, that it does not stimulate natural antibody responses in the victim. Venereologists with wide experience in the United Kingdom, North Africa, and the Middle East are working together now, and none have previously met similar conditions. Our American colleagues have found the same conditions among their troops, and have had to enlist penicillin as alternative therapy, with considerable initial success. If throughout Europe similar difficulties are to be met in future campaigns, gonorrhoea will be an immense scourge, with resultant strain on medical personnel, hospital accommodation, and man-power. There is no longer reason for complacency.

Summary

Since the invasion of the Latin countries gonorrhoea has proved intractable to the former accepted methods of treatment by chemotherapy.

Treatment must be given regularly and prescribed with ingenuity. Adjuvant methods are necessary in a high percentage of cases.

Experienced venereologists and special treatment orderlies are required in greater numbers than before.

Every endeavour to prevent infection must be made.

Medical Memoranda

Fixation of Tissues from Cases of Malaria

It is common knowledge among pathologists that formalin reacts with lysed blood to produce a dark-brown deposit, and that this occurs both with blood lysed before death (e.g., in an extravasation) and with the intravascular blood which soon after death begins to undergo progressive lysis. This formalin-blood deposit unfortunately closely resembles the pigment produced in malaria, and it is thus important, as Lignac (1924) warned, to avoid the use of formalin as a sole fixative for malarial tissues.

Barrett (1944) has recently shown that formalin deposit can be easily removed from sections by immersion for two hours in picric alcohol, and hope was aroused that this might, after all, allow the use of formalin in cases of malaria. To test the effect of picric alcohol on malarial pigment, sections of various viscera (fixed in 95% alcohol and in Zenker's fluid) were treated for one and three-quarter hours; the malarial pigment was almost completely dissolved away. Thus treatment with picric alcohol does not differentiate between malarial pigment and formalin deposit. (Melanin, a possible source of confusion, was found in a section of a cerebral metastasis from a melanoma of skin to be apparently unaffected by picric alcohol.)

Formalin is in general not a satisfactory fixative by itself for tissues that are to be embedded in paraffin (Mallory, 1938), but it has one advantage that makes it of particular value to those interested in malaria: it is less lytic towards the fragile post-mortem erythrocyte than is any other common fixative. This property is utilized, formalin deposit largely prevented, and the tissues rendered suitable for paraffin embedding by the following procedure:

Primary fixation is carried out in formalin (10 parts with 90 of water) for 3 to 6 hours (or in formol sublimate if the tissues be less than 6 hours dead), followed by direct transfer to 5% aqueous mercuric chloride, in which fixation is continued for 5 to 20 days (Lendrum, 1941).

This method, which is the ideal routine fixative for human post-mortem material, is suggested for malarial tissues because of the minimal lysis and the clarity of the microscopical picture; but, since there is still a slight risk of deposit, it is essential that tissues from suspected malaria should also be fixed in formalin-free fluids. The two methods of this kind commonly used in the past were fixation in 90% alcohol (ethanol) or in Zenker's fluid. Both of these unfortunately cause lysis of

erythrocytes in post-mortem human material, although with Zenker's fluid this can be partially avoided by omitting the acetic acid.

The following method is suggested as the best formalin-free fixation for human malarial tissue:

Fix in an aqueous solution of 2.5% potassium bichromate and 5% mercuric chloride for about 6 hours, and then transfer the tissues directly to aqueous 5% mercuric chloride; in this, fixation continues without the danger of spoiling the common methods of staining, as may result from the prolonged action of bichromate.

This method gives the minimum of lysis of erythrocytes other than by the use of formalin, preserves the malarial pigment, and of course avoids the fallacy of formalin deposit.

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Obstructed Labour with Complicated Presentation and Exomphalos

The following case, which was treated in the London Mission Hospital, Neyyoor, Travancore, South India, may be of interest.

CLINICAL HISTORY

An Indian Christian woman aged 23 was admitted to hospital on Nov. 25, 1942. She was a multipara, in labour. She had previously had two normal full-term deliveries, and one child was living. Labour pains had begun 2½ days earlier, in the evening of Nov. 22, after spontaneous rupture of the membranes.

On examination at 11.30 a.m. on Nov. 25 her condition was only fair—temperature 100.6°, pulse 96—and she showed signs of exhaustion. The uterus was contracting strongly about every three minutes. The organ was rounded in shape, with the fundus lower than usual. It was difficult to make out the position of the foetus, but it was thought it might be transverse. Vaginal examination was made by the Indian doctor (many such examinations had been done by the barber-"midwife" with no aseptic precautions), who reported that there was full dilatation and the presenting part was a foot with either the head or a buttock, and high up. I then examined the patient and found a vertex presentation with a foot prolapsed on the left side.

In view of the patient's general condition it was decided to deliver her at once, and chloroform anaesthesia was administered. Podalic version was performed with difficulty, and in feeling for the second leg my hand came in contact with soft material, which felt like intestine or membrane. Although version was performed, the baby could not be born beyond the buttocks. The abdomen was to the mother's left, and coils of intestine could now be seen. There was no proper cord formation, but the umbilical vessels could be seen and felt. They were divided close to the child's body, which was then delivered without difficulty. The placenta and membranes followed almost at once. There was no undue bleeding. The patient's condition was no worse, and 1 c.cm. of ergotamine was given intramuscularly. That evening her temperature was 102.6°, pulse 98. Sulphanilamide 1 g. four-hourly was started, and 12 doses were given. She made an uneventful recovery, and was discharged well on Dec. 1, six days after admission, at her own request.

The baby was a full-term male and weighed 6½ lb. (a normal weight for a South Indian baby). The head was microcephalic, and deeply grooved on the left side where the leg had lain alongside it. There was a large exomphalos, with an opening in the abdominal wall 3 in. in diameter. Parts of the intestines, the liver, and spleen were prolapsed, and the heart also was lying outside the chest wall, enclosed in the pericardium. This was beating at a rate of 60 a minute. The child started to gasp as soon as it was born, at a rate of about 6 a minute. It lived altogether three-quarters of an hour, the respiration and heart rate gradually becoming slower.

Placenta, Membranes, and "Cord."—The placenta was large, diffuse, and thinner than normal. The chorion was normal. The amnion was adherent to the thin wall of the sac of the exomphalos. In this the umbilical vessels could be seen running separately to and from the placenta. They were slightly tortuous, but the distance from the placenta to the edge of the abdominal wall was not more than 6 in. There was no cord formation at all. It was unfortunate that in order to effect delivery the vessels had to be divided. The cut end of the umbilical vein could be seen entering the body on the lower surface of the liver, but the points of emergence of the umbilical arteries could not be seen.

COMMENT

In this case of obstructed labour delay appeared to be due to the absence of formation of an umbilical cord, and to the shortness of the vessels which ran to and from the placenta in the wall of the exomphalos. A foot had prolapsed, making a complicated vertex presentation. Delivery was effected by podalic version and division of the umbilical vessels. In spite of extreme exomphalos and moderate microcephaly the "monster" lived for three-quarters of an hour.

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Reviews

RESPIRATORY DISEASES

Diseases of the Chest. By Robert Coope, M.D., F.R.C.P. (Pp. 524; illustrated. 25s.) Edinburgh: E. and S. Livingstone. 1944.

In his preface to this book Dr. Coope states that it is an essay in medical education, and it certainly represents a departure from the standard modern technique of medical writing. The work is indeed an essay on the respiratory diseases rather than a textbook, and it is not intended to be a manual of reference. The author has deliberately subordinated the facts to the broad principles, and he has added a wealth of practical advice which is not usually found in standard medical works. In many ways this volume is more reminiscent of the wise, leisurely publications of fifty years ago. Occasionally his enthusiasm for giving advice leads the author to underestimate the common sense of his disciples: for instance, the comments upon the type of clergyman who should be allowed to visit a patient with pneumonia might well have been omitted. But, on the whole, this book succeeds in teaching a sense of proportion which is not to be found elsewhere.

The chapters on clinical examination and physical signs are particularly excellent and should be read by all students. The signs which are of real practical importance are carefully described, and the statement that many of the so-called classical signs "might now be considered of interest only to medical historians" will be accepted readily by clinicians, but perhaps less eagerly by those who are examiners. Unlike many writers on this subject Dr. Coope is free from idiosyncrasies, and there is nothing to bewilder the learner in his account of physical signs, while there is much that will clarify his ideas. The section on tuberculosis is fairly typical of the general method of approach to individual diseases. It is distinctly sketchy as regards the facts, but it lays down the broad principles of treatment with sound sense and human understanding. Other books may give more about the treatment of the disease, but this one will teach the student how to treat his patient.

Insistence upon fundamental principles has led to a certain light-heartedness with regard to detail, and there are some small inaccuracies which require correction: for example, the anatomy leaves much to be desired, and, again, the student reading about lung abscess would gain the impression that an empyema is a more common complication than an adhesive pleurisy. But to lay undue stress upon these small points would be unfair to the work as a whole, because the facts can be obtained from other sources, whereas this book teaches many valuable things that cannot be learnt from encyclopaedias. In fact this volume is to be commended to all students; they will find it easy to read and will not fail to profit from its wisdom.

THE U.S. DISPENSATORY

The Dispensatory of the United States of America. By H. C. Wood jun., M.D., and Arthur Osol, Ph.D., assisted by H. W. Younken, Sc.D., and L. Gershenfeld, D.Sc. 23rd edition. (Pp. 1,881. £5 5s.) London: J. B. Lippincott. 1943.

The *United States Dispensatory* has now reached its 23rd edition. It is a useful reference book, divided into three parts. In Part I are found drugs which are official in *U.S.P. XII*, the *National Formulary* (7th edition), and the *B.P.* of 1932 with its addenda. The method of dealing with each drug is very similar to that followed in the *British Pharmaceutical Codex*; there is a description of the drug, with details of methods of standardization and a short account of action and uses. Part II deals in a similar manner with drugs which are not official. The compilers of the Dispensatory have solved the problem of the very large number of drugs which they might describe by restricting severely their choice of unofficial drugs. Thus, while they take 1,237 pages to discuss official drugs, they confine themselves to 348 on unofficial drugs. The book would be more valuable if this proportion were reversed. Part III is concerned with processes and reagents and similar details referred to in the *United States Pharmacopoeia* or the *National Formulary*.

It is to be feared that the book in its present form loses much of its usefulness. Details of official drugs are available in many books. Details of unofficial drugs are harder to find, and the reduction of the space allotted to them to so small a proportion of the book seems a pity. The other serious drawback from the point of view of British readers is that the original papers referred to are throughout American. There are very few references to British papers and still fewer to Continental ones.

The book is well printed and easy to read, and is probably as satisfactory as such works can be expected to be in these days when there is so much material to be considered for inclusion. It is inevitable that much is included of little interest, and much is omitted which some would like to see there.

THE SUBNORMAL GIRL

The Subnormal Adolescent Girl. By Theodora M. Abel and Elaine F. Kinder. (Pp. 215. $2.50 or 16s. 6d.) New York: Columbia University Press; London: Oxford University Press.

This is an excellent and comprehensive study of the subnormal girl of from 10 to 19—the period when problems of adjustment are most difficult for the normal and doubly so for the subnormal. The authors justly point out that there is no interruption in the series from the imbecile to the normally endowed, and consequently the level at which the State can legally take control is an arbitrary one, and there must always be a large number who must remain in the community for better or for worse. It is becoming more and more evident that the certifiable group is almost less of a problem than the dullards. The trouble with the subnormal is that her rigidity makes it so difficult for her to adjust to unexpected situations, and the unreliability of her behaviour results in most unexpected and inappropriate actions.

The subnormal girl is studied in her home, at school and in industry, and in the institution, and cases are quoted to illustrate how these children behave. Such behaviour is by no means always bad, and in favourable circumstances these girls may make good and even come to earn good wages. But even when it occurs this successful adjustment is only achieved at a price, for dullards need prolonged and careful training and much patience and perseverance. When we come to the seriously maladjusted girl we find a record of delinquencies, unwanted pregnancies, and disease which costs the community dear and often militates against the interests of the patient's normal sisters. In a final chapter the origins of subnormality are discussed, and it is admirably argued that since there is no one simple cause for this misfortune there can be no single simple remedy. Sterilization, social betterment, education, and the like may all have their uses, but much research is still needed before a real understanding of the problem and a constructive solution can be reached. A valuable bibliography is appended. This book can be thoroughly recommended to all those interested in medicine, psychiatry, education, and sociology.

Notes on Books

Industrial Nursing: its Aims and Practice, by A. B. DOWSON-WEISSKOPF, is published by Edward Arnold and Co. at 5s. It is an excellent little book, full of information suited to industrial nurses, both those who have the added weight of a doctor's knowledge and authority to support them, and those who have to work without his backing. In the chapter on training it is admitted that the ideal scheme for the training of industrial nurses has yet to be worked out. The one-year courses so far arranged are necessarily expensive, while the three-months and six-weeks courses sponsored by the Ministry of Labour are far too short. Among the ten chapters of which the book consists we find detailed information on the scope and conditions of service of the industrial nurse, on the running of a health department, and on industrial emergencies and routine treatments. The environmental hygiene and the personal hygiene of industrial workers are discussed in other chapters, and there is a detailed chapter on record-keeping, illustrated by numerous sample records. The final chapter discusses co-operation with organizations inside and outside the factory.

Prof. F. J. BROWNE'S well-known textbook *Antenatal and Postnatal Care,* first published in 1935, has now reached a fifth edition (J. and A. Churchill; 24s.). The text has been thoroughly revised, and though less than two years have passed since the fourth edition appeared, many changes have been found necessary. There is a new chapter on the Rh factor and erythroblastosis. An account is given of recent work on diet and pregnancy, especially on its possible effect in preventing various diseases and accidents of pregnancy; and after a critical evaluation of the Toronto experiment and of that carried out in London by the People's League of Health the author writes: "It is impossible after reviewing all the literature on the relation of diet to the disorders of pregnancy to do other than conclude that, while much careful work has been done, many more large-scale, carefully planned, and statistically controlled experiments are necessary before final decisions can be reached."

The Chemistry of Synthetic Substances, by Dr. EMIL DREHER (Philosophical Library Inc., 15, East 40th Street, New York; $3.00), is a dissertation on a series of substances of unusually high molecular weight and on their production by the chemical coupling of smaller molecular units. Such substances include rubber, plastics, enamels, paints, and other materials which are finding an increasing economic employment, some as substitutes for the products of Nature, others for their possession of special qualities not previously available. The discussion shows how the properties of these products vary according to the chemical nature of the units from which they are built and according to the kind of reaction by which the units become linked. It is a useful summary of the work that has been accomplished in this field.

A third edition of Dr. EVELYN E. HEWER'S *Textbook of Histology for Medical Students,* which first appeared in 1937, has now been published, three years after the second edition of 1941. This is good evidence of the continued popularity of the work, and of the demand for a student's book which provides all the more essential facts of human histology without these being obscured by the inclusion of unimportant structural details. A considerable number of excellent low-power photomicrographs have been added; also valuable notes bearing upon the physiological changes which normally take place during processes of activity and return to a resting condition, and of the changes in the life-history of a cell from its formation, through maturity to senescence, to its final degeneration and absorption. Little need be said in the way of constructive criticism. One would like to see an improved technique in the original drawings of some of the high-power magnifications, and in the drawings for reproduction of some illustrations derived from other sources; also a fuller account from the histological standpoint in the description of the sense organs is desirable. The work as a whole may be commended for the use of medical students as a clearly written textbook by an experienced teacher. It is published by Heinemann at 17s. 6d.

Preparations and Appliances

STERILE SULPHANILAMIDE FOR LOCAL USE

Sulphonamide powders for local application to wounds, burns, etc., should be absolutely sterile, and their sterilization in small amounts by users is troublesome. Unless the powder is initially quite dry and temperature accurately controlled, caking may occur, and discoloration is also common. Boots Pure Drug Company Ltd. have now produced a sterile sulphanilamide for local application. This is a free-flowing crystalline powder with no added ingredient, and is supplied in 15-g. bottles and in 5-g. sifter envelopes. The latter have three coverings of different colours, the innermost of which should be removed with sterile forceps; if the edges are then pressed together at marked points the powder can be shaken from it.

TETANUS ANTITOXIN

Recent Ministry of Health recommendations indicate 3,000 international units of tetanus antitoxin as the minimum prophylactic dose. Burroughs Wellcome and Co. announce their intention of discontinuing the supply of the 1,000-unit packing of "Wellcome" brand refined tetanus antitoxin globulins. As a further safeguard against the use of inadequate prophylactic dosage, multiple-dose packings containing 1,000 units per c.cm. are also to be discontinued. The suppliers recommend that existing stocks of these packings should be used in accordance with the new dosage.

DRIED EXTRACT OF ROSE HIPS

Messrs. A. Wander Ltd. have prepared "Hipexa" tablets containing dried extract of rose hips and estimated to have not less than 7 mg. each of natural vitamin C. The dose recommended is 1 or 2 tablets after each meal, so that a total of 20 to 40 mg. vitamin C per diem would be obtained in this way. It is probable that the present wartime diet at its worst contains as little as 20 mg., and at its best perhaps 60 mg., a day. Probably some individuals would benefit by additional vitamin C in tablet form in the winter months when the amount in the diet is at its lowest. Evidence is accumulating that the amount of vitamin C in the diet influences the tensile strength of scar tissue formed in repairing wounds, so vitamin C tablets may suitably be prescribed for civilians with injuries.

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THE PLANNERS OF MEDICINE

PEP, which as most readers by now know stands for "Political and Economic Planning," has been quick off the mark to describe and discuss the White Paper on a National Health Service and the reactions of the medical profession to the paper. In 1937 the same organization produced what has with justice been called a "valuable and mainly factual report" on the existing medical services. In its present anonymous publication it comes out as an ardent advocate of the measures for a National Health Service proposed in the Government's White Paper, and in perusing the document the reader becomes increasingly aware of the significance of the words, "Political and Economic Planning." The N.H.I. Scheme, it states, is out of date, and "*must* be replaced"; the wartime reorganization of the hospital system "*must* be consolidated"; the Government "*must*" see that "no individual is obliged to pay a fee" and "*must* solve the problem of the geographical maldistribution of medical resources"; the new Joint Boards "*must* take their planning functions seriously"; "the Government is right in insisting that doctors in Health Centres *must* be remunerated by salary or some similar alternative excluding competition"; "a hospital participating in the service . . . *will have to* conform . . . and it *will have to* submit to inspection." The imperative words we have italicized show clearly enough without further argument the attitude of PEP to the White Paper, and more especially to the medical profession. The dictatorial stress throughout this ably written document rouses uneasy feelings in a profession which by the nature of its work knows full well the value of a second opinion. It may not always be fair to judge a man by the company he keeps, but when the reader looks at the kind of organizations which also join with PEP in its enthusiastic acceptance of the Government's scheme—demurring only because it does not go far enough—he may get some enlightenment on the meaning of the word "political" in PEP. For example, the Communist Party has recently published its views in a pamphlet entitled "Good Health for All," and on page 2 makes this statement: "The Government's proposals have been published after a very great deal of pressure from the Labour and Communist Parties, Co-operative Organizations and Trade Unions, and health workers' organizations, such as the Socialist Medical Association." Of hospitals the Communist pamphlet writes: "Control will be in the hands of the State and the Local Authorities . . . standards will be laid down. The inspectors will judge whether these are observed. If not, the offending hospital will receive no money from the Government." At the same time as this pamphlet was published the Socialist Medical Association issued a press notice with this statement: "The Socialist Medical Association warmly welcomes the White Paper on a National Health Service as a step towards a socialized health service and part of a general programme of social security. . . . The Government is urged to introduce the necessary legislation at an early date . . . all doctors should be employed by the Joint Health Authority of the area in which they work."

The Ministry of Health may well regard the Communist Party and the Socialist Medical Association as strange bedfellows, but we believe we shall be doing a disservice to the cause we have in common with the Ministry—namely, the provision of a first-class and comprehensive medical service to the country—if we do not give expression to the grave disquiet felt by the majority of medical men who are aware of the need for reform and are genuinely anxious to promote it. At the risk of distorting the position by summarizing it briefly, we would say this fear is for the loss of professional freedom and the recasting of medical services according to political dictate. When a project has the blessing of the Communist Party a liberal profession may well feel apprehensive about the future. The Council of the B.M.A. has already publicly voiced its fears of political influence in medical matters, and as each week passes it becomes clearer just what the political influence is. The present PEP broadsheet gives the reasons for these fears in admirable language:

> "Inflexible and pettifogging lay control of doctors, out-of-date methods of appointing and promoting hospital medical staffs, narrow-mindedness and lack of imagination are still far too prevalent among local health authorities. The doctors practising in municipal hospitals are still usually denied the full measure of freedom in their professional work which is the rule in voluntary hospitals, chiefly because local authorities like one man—in this case the medical superintendent—to be clearly responsible for all that happens in each of their institutions, whether hospitals, workhouses, or schools. Local authorities still commonly expect their doctors to seek their councils' permission before publishing papers even of a purely medical character, and they do not often invite expert technical advice from practising doctors or other health workers."
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> "Similarly, the Ministry of Health has too often allowed the non-health functions which it inherited from the Local Government Board to overshadow its public health duties; it has too frequently combined a meticulous attention to details with a disheartening disregard for fundamentals; in many respects, until recently, it has tended too easily to forget even the outside expert advice which it invited and to shelve proposals for reform; the smugness of many of its pre-war reports on such matters as malnutrition and the health of children still rankles. Too many Ministers have been more interested in party politics than in the nation's health or in the welfare of doctors, nurses, and other health workers. Both the Ministry and local authorities, not to mention the Treasury, have given too little thought to another of Newsholme's principles—that 'health is worth whatever expenditure is efficiently incurred in its maintenance or to secure its return.'"

In citing the Assistance Board as possibly a model form of organization "for some at least of the medical services," the broadsheet goes on to explain that the success of the Board is largely due to the fact that its members are drawn from outside the Civil Service, that they hold office only for limited periods, and that they give only part of their time to the Board's work. PEP observes that the Ministry of Health is largely to blame for the suspicion with which the doctors of the country regard it. Again we will allow PEP to give in its own words the reasons for the

profession's rooted dislike and distrust of the influence of politics in medicine:

> "Unfortunately the only real safeguard is the frame of mind of the Minister and his chief officers, which in the last analysis is bound up with politics. No form of consultative machinery can oblige a Minister or a Government to seek and follow expert advice if they are indifferent to 'long-term planning.' The White Paper indicates a change of heart at the Ministry of Health. Doctors will do well to recognize it."

This change of heart has not escaped the attention of the medical profession. But if the change is an enlargement to the left the prognosis is serious. The above quotations from the P E P broadsheet clearly explain why the majority of doctors in the country are afraid of the introduction of politics into medicine. The real objection is not to the party politics of right, left, or centre. If any political party were to introduce a measure of reform that had the support of the majority of doctors then it would be a matter of indifference to the profession whether it was the Labour, the Liberal, or the Conservative Party. Politics are, however, inseparable from both central and local government. A Minister of Health, as we know, is as likely to form his policy on the pasteurization of milk on political grounds as he is on the grounds of the safety of the public health. We even fear that the views of a medical M.P. on such a matter may be as much influenced by the particular interests of his constituents as by the scientific truth of the situation. We know, too, that party politics play just as baleful an influence in local government and in guiding the decisions of local authorities on health matters. What is more, local authorities have been known to judge a medical man's fitness or unfitness to hold a medical post on the ground of his political beliefs. Some recent critics—and these include some doctors—have had the effrontery, in order to gain their own political ends, to accuse the medical profession of being ignorant of the society in which they are living, of having no social sense, of taking no part in the life of the community at large, of being disinterested in "positive health"—a term incidentally coined by one of the most able spokesmen the B.M.A. has ever had. The enemies of the medical profession eagerly seize upon these parrot cries and are at no pains to discover the facts. To take one single example—and we take it because of its supreme importance for the public health—we may cite the activities of the B.M.A. in the field of nutrition. Both the public and the profession need to be reminded that when the Ministry of Health between the two wars appointed a Committee on Nutrition the report never saw daylight—presumably because the contents of the report were politically unpalatable. In 1933 the B.M.A. set up a Nutrition Committee, and made its report available to the public in printed form in the same year. There were political implications in this document, and as one may fairly assume that the majority of the members of the Council at that time did not belong to the Labour Party the public might profitably draw a lesson from this incident. When the Council discussed the report it was not blind to its political implications, but it decided that it was concerned with one issue only, and that was the medical one. The publication of the B.M.A. report did more than anything else in between the two wars to rouse public opinion on nutrition. In between the two wars also the B.M.A. started a campaign through advertisements in the Press on such public health issues as the pasteurization of milk. The publication of its report on physical education was yet one more sign of its profound awareness of the socio-medical obligations of the profession. This is what we mean by professional freedom, a freedom publicly to advocate measures of health undeterred by the political considerations that have always hampered the medical man working under the control of central and local government and depending on them for his livelihood.

These remarks are relevant to the P E P broadsheet. "Practising doctors," it is stated, "generally are far too isolated from public life. . . ." But P E P then advocates a line of development of policy which will exclude all doctors from full participation in public life, as in fact Civil Servants are so excluded. Both P E P and the *Times* leader writer[1] quote with approval the late Sir Arthur Newsholme's saying: "Skilled medical work cannot be controlled by laymen, but in all business arrangements the representative lay power must be supreme." Medical men are not seeking to be supreme in "business" arrangements; but they want to secure that "business" supremacy does not interfere with professional freedom. Recently, yielding to pressure, the L.C.C. removed its ban upon the publication of scientific articles without previous censorship, but at the same time so altered the wording of its standing orders as to make it clear that it would not allow the publication of criticism of administration and organization of services without censorship. Throughout the P E P broadsheet the writer has the honesty to admit the contradictions of fact which are stubbornly in the way of the doctrinaire theory to which he is attached. On the one hand he wishes to see the profession put under complete control, and on the other admits that chiefly by combining in the B.M.A. medical men have succeeded in securing "an appropriate measure of recognition and of remuneration as a profession." Approving the enormous increase of central control foreshadowed in the White Paper proposals, he nevertheless writes: "Professor T. S. Simey has shown that 'political control led to irresponsibility of the permanent official, and to inability to formulate a policy for the administration of a service,' and that 'the problem of reconciling political control with administrative courage and efficiency' still awaits satisfactory solution." He repeats the criticisms already made by the B.M.A. of the present inadequacies of central and local government, but backs up the official line of pursuing what he describes as a "make-do-and-mend" policy for the health services as well as for education, without remedying the existing chaos of local government. Yet the broadsheet admits that Canterbury, with a population of 26,000, will be separately represented on its Joint Board, but not Bexley, with a population of 77,000. The counties of Rutland and Radnor, with populations of 18,000 and 20,000, will rank as major authorities, while Wandsworth (340,000), Islington (292,000), and Harrow Urban District (184,000) will be minor authorities unable to run their own Health Centres. All this seems to be an illustration

[1] *Times*, June 28, 1944.

of the compelling force of what it is contemporary fashion to call an ideology. The facts are ignored so that the theory may remain unstained. In spite of the anomalous exclusion of large authorities from the Joint Boards, P E P sees in the Joint Board the key partner in the area plan. The Joint Board, the broadsheet observes in time, "should never forget its partner—the local health services council." It believes that there would be "little harm and a great deal of benefit from the co-option to the Joint Board of a few professional members," but "the real place for the expert" is on the Health Council. P E P nevertheless recognizes the risks of local inactivity and central timidity, and in one significant sentence makes this statement: "Much will depend upon the attitude of the Treasury, the effectiveness of the Central Health Services Council, the personality of the Minister, the alertness of his officials, and the political complexion of Parliament." Is it really upon these that the health and well-being of the country is to depend? The individual medical man, be it noted, is not mentioned.

The new doctor will, according to P E P, find his proper place in the Health Centre, which should "be pervaded with an atmosphere of friendliness." "Doctors," it says, "would learn to treat their patients not as irresponsible children but as adult fellow-citizens, and the old-fashioned mystery man would gradually disappear." The doctor in the Health Centre will also have to give lectures on "health topics," and this discipline "will equip doctors and other health workers with that intimate knowledge of the 'consumer' of the health service which they often lack to-day." This is the kind of nonsense to which the medical profession is at the moment being subjected. The medical profession has every reason to suspect the motives of people who write like that. If there is one man in the community who has a real conception of the intimate needs of his fellow creatures it is the practising doctor.

We print in the opening pages of this week's *Supplement* the summary of the broadsheet. The full document should be read widely, as it is an important commentary on the White Paper. It brings to a head a number of issues with which the profession is now confronted, and often, we believe, breathes a spirit which is inimical to the medical profession. It is the spirit which can see no other solution to any problem except through the rigid confining of the individual in an official-bound administrative structure. It is planning—both Political and Economic.

A NATIONAL MATERNITY SERVICE

There will be general agreement that the foundation of a national health policy must be a good maternal and infant health service. The maternity and infant health services committee of the Royal College of Obstetricians and Gynaecologists has prepared a report in which a National Maternity Service is dealt with in its widest aspects, the care of the infant and social and economic conditions being given their rightful place.[1] The practice of obstetrics must be considered on a broad national basis, in the light of the ideas and needs of to-day.

In the introduction the shortcomings of the present service are considered. It is true that the three obstetric mortalities—maternal, foetal (stillbirths), and neonatal—have steadily fallen during the past few years, and for this due credit must be given to the health services of the country and the way they have been kept going during the difficult years of war. Nevertheless the report states that the pace has been by no means commensurate with advances in general medical science, and is much more likely to have come about from the more prevalent use of blood and plasma transfusion, the use of sulphonamide drugs, and recent bacteriological technique in preventing and tracing contact infection, than from a rise in the average standard of obstetric practice. There can be no doubt, too, that the maternal and other rates could be forced considerably lower by making better use of our present resources. The attention paid in the report to social and economic conditions in relation to a maternity service reveals an outlook not usually found in documents of this kind. It cannot too often be urged that no form of medical activity can be effective if these conditions are poor. The variations in the stillbirth and neonatal death rates, and to a less extent in the maternal rate, according to social class and geographical area, are not well enough known, though the information is clearly set out in the Registrar-General's reports. It is not a pleasant truth that adverse social and economic conditions materially lessen the chances of a child's being born alive and materially increase its chances of dying in the first year of life. Before the war a large proportion of the population suffered from deficiencies in the quality of their diet, and evidence has now been adduced to show that malnutrition is associated with increased abortion rate and premature-birth rate. Moreover, malnutrition may profoundly influence the skeletal development of the foetus *in utero*, leading on to rickety pelvis which twenty years or so later may affect the safety during childbirth of a new generation of mothers. Other socio-economic subjects dealt with in the report are the family unit, the encouragement of early marriage, the mother in industry, home helps, nurseries, and education in sex and parenthood.

The technical section of the report opens with planning, for the best technique loses power unless directed by plans to bring together patients, workers, and equipment at the right time and in the right places. Planning must be based on areas of adequate size. The present system of multiple authorities—there are more than 400 sovereign independent maternity and child welfare authorities in England and Wales—must go, for a small authority has neither the means to provide nor the material to make use of a complete service for itself. The report considers that the maternity and infant health needs of an area with a population of about a million, yielding about 15,000 births a year, would be big enough to make full use of a complete service and, on the other hand, would not be too large for economical administration and central leadership and guidance. At the same time the country should be divided into large health regions based whenever possible on a

[1] The report is published by the College, 58, Queen Anne Street, London, W.1, at 1s. 6d. The summary and conclusions appeared in the *Journal* of June 17 (p. 823).

university medical centre, the aforementioned areas becoming constituent areas of the large regions.

The service, under this plan, would be based on maternity "centres," of which three grades are specified. A key or primary centre would be the regional centre, associated with a university and attached to a medical school for undergraduates, and "of such size, status, and repute that it would be the chief consultative and research centre of the region, as well as the source of leadership and inspiration for all the other workers in the service, whether specialists, general practitioners, midwives, nurses, or lay workers." There would be a whole-time director, of professorial status, living in the precincts. The centre would comprise a unit of 100 or more beds, a department for infants under a paediatrician, an associated gynaecological department, laboratories, ante-natal and post-natal clinics, and it could be the co-ordinating centre for all the maternity work of the region. "Divisional" or secondary centres in large towns and in small towns in rural areas would not necessarily be smaller or less well equipped and staffed than the key centres. At the periphery would lie the outposts of the service, small "local" centres, the focal points in rural parts for midwives and health visitors, with a few beds in charge of selected general practitioners. The relative merits of domiciliary and institutional midwifery are discussed, and the Registrar-General's figures, and figures supplied from large towns, are quoted to show how strong during the past few years has been the trend towards the latter. It is suggested that maternity accommodation should be provided for 70% of all births, the needs of town and country being different. On this basis an area yielding 15,000 births a year would require about 700 lying-in beds and ante-natal beds. As at least one-third of deaths in childbirth are due to shock or haemorrhage, the immediate availability of blood and plasma for transfusion confers at all events one great advantage on institutional midwifery. It is rightly stated that ante-natal care affords only a partial protection to child-bearing women, for no amount of ante-natal care can compensate for poor care during labour—quite apart from the fact that certain dangerous complications of labour are unpredictable. The report discusses why ante-natal care does not yet come up to expectations. One of the chief mistakes has been that many local authorities regard ante-natal care as an end in itself, isolated from the labour room, whereas the truth is that pregnancy and labour are all of a piece and should have continuity of supervision from the same doctor. The inadequate provision of ante-natal beds even in modern maternity hospitals is to be deplored; they should be at least one-third of the total bed complement. The report appeals for post-natal hostels and proper rehabilitation after childbirth. In carrying out this ideal there are doubtless domestic difficulties, and that is where home helps and nurseries would come in. Rightly, in so far as the mother is the central figure in the family unit, "plans directed to the improvement of national health must give careful attention to maternal welfare."

The personnel of the service would consist of obstetric specialists, paediatricians, general practitioners, midwives, health visitors, home helps; and all these are considered in turn. There are at present on the roll of the Royal College of Obstetricians and Gynaecologists 167 Fellows and 285 Members, and even if these were uniformly spread they would scarcely suffice. Here is a problem that demands early solution, for it takes a good five years of postgraduate training to make an obstetric specialist. The Committee of the College states in unequivocal words its belief that, though general practitioners should take an important part in a national maternity service, only those with special midwifery experience and interest should be employed in it. General practitioners with special experience are of two kinds: those who for years have been particularly interested in midwifery practice and have become skilful in that way, and those who after qualification have held a resident post in an approved hospital. The College grants a diploma to general practitioners, and regards the prescribed training as more important than passing the examination. There are at present 332 diplomates (D.R.C.O.G.), a number far short of requirements. "The share that general practitioners would take in the service would be: to have charge of the local maternity centres, to do ante-natal work at clinics and health centres, to do domiciliary midwifery and take medical aid calls from midwives." To encourage the true and desirable team spirit general practitioners should, if they wish, be given opportunities to associate themselves for periods of time with the work in the large maternity centres. It is pointed out that the present system of midwifery practice often places general practitioners in impossible situations where, unsupported by a maternity institution or a consultant or a resuscitation team and in unsuitable surroundings, they may have to deal with complications that would test the promptness and skill of the most able specialists.

Throughout the whole report one theme recurs again and again—co-ordination, integration of all the components of the service, from top to bottom. The weakness of the present system of maternity work in this country is not so much a lack of knowledge as inability to make use of what is already known. And that is where, looking into the future, the report, when discussing administration, ends with a note of disappointment over the White Paper plan of putting the hospital and consultant services under one authority, and the clinics, the general practitioners, and the midwives under another. What is asked for is a service under a single administrative authority.

VARIATIONS IN OUTPUT OF WAR MATERIAL

In order to obtain further information about the vital problem of output in war production factories S. Wyatt and his collaborators, working on behalf of the Industrial Health Research Board, have been making investigations in seven large factories, and they have embodied their conclusions in a report.[1] They planned to measure the individual output of groups of about 200 women workers for a period of four to six weeks before a reduction was made in the hours of work, and for at least twelve weeks after it. Unfortunately the change of hours was not very substantial,

[1] Emergency Report No. 5 of the Industrial Health Research Board. 1944. H.M. Stationery Office. (4d.)

as they fell only from about 54 hours a week to 51 hours; but this relaxation of working time was followed by an average increase of 3% in the output during the first and second four-week periods after the change, rising to 6% in the next four weeks. If the observations had been continued for a longer period the rise would no doubt have been greater still, for the occupations studied by the Health of Munition Workers Committee in the last war showed that three months or even more were required before the workers achieved the full production brought about by a shortening of hours. In the present investigations a close inquiry showed that the changes in output often depended, in part, on other factors than the effect of shorter hours, but in three of the groups studied it was possible to infer with some degree of certainty that the shorter hours genuinely increased the hourly output. The effects of various disturbing factors are illustrated in the pamphlet by a series of charts, and they include modifications in design, mechanical and material difficulties, variations in supplies, and technical improvements in the methods or conditions of work. Arguing from the results obtained in this and a previous investigation (Emergency Report No. 2), the inference is drawn that, of all the factors studied in numerous war factories, technical improvements and reorganization are the most likely to lead to an increasingly high level of efficiency.

The effect of hours of work on absenteeism is well shown in two series of data. When the women were working 59 hours a week the average absenteeism was at a maximum of 19%, and when hours were reduced to 55 it fell to 11%. In the men, as a whole, the absenteeism was only half that of the women, and it reached its maximum of 11% when their hours of work were 65 a week. It fell steadily with reduction of hours, till it reached a minimum of 6% when they were 56 a week.

GOOD LIGHTING

The "black-out" and the need for economy in power have interrupted the steady developments of pre-war years in the proper use of lighting as an essential aspect of vision. This interruption in developments and the temporary relapse to lower standards of visual comfort have, however, made people light-conscious who previously took lighting, like many vital but familiar things, for granted. The rebuilding of our cities and towns offers opportunities for the introduction of good lighting as an integral part of civic life, while the vast housing schemes that are inevitable likewise allow for the planning of adequate lighting. The stringency that the war years imposed can but add to the recognition of the need for such innovations, and the Illuminating Engineering Society has done well in clearly formulating desiderata for the future. The general principles underlying illumination are brought out in an introductory pamphlet, and special aspects are dealt with in two separate publications on the lighting of schools and of public buildings.[1] The introductory pamphlet rightly stresses the point that by good lighting is meant lighting that is ample and adequate for the particular task in the particular environment, and that by this standard a vast number of people are still working and living under "appallingly bad" conditions. If it be true that seeing is a partnership between good lighting and vision, it is also true that good lighting is not merely a question of ample quantity. The lighting system has to harmonize with the general architecture, so that abrupt contrasts between light and shade are avoided. The sickle-like sharpness of the edge of shade and shine of sun-drenched woods and fields is highly undesirable in the home and workroom, and this emphasizes the difficulties of the illuminating engineer trying to enliven an unsatisfactory building. Yet different buildings are planned for different purposes, and the lighting requirements of, say, a picture gallery and a classroom are obviously different. In the one a suitably placed concentrated light, shading off gently into the background, is necessary; in the other a more general and diffuse lighting system is required. Public buildings can add to or mar the natural dignity of a town, and illuminating engineers are right in insisting that the exterior lighting of such buildings and the adequate lighting of their backgrounds are civic problems that deserve consideration. The flood-lighting seen in our cities in the Jubilee Year remains as a pleasant memory and gives an indication of things to come.

[1] *Principles of Good Lighting. The Lighting of Schools. The Lighting of Public Buildings.* Published by the Illuminating Engineering Society, 32, Victoria Street, S.W.1. Price 1s. each.

CONTINUOUS CAUDAL ANALGESIA

Progress in anaesthesia consists in something more than changing a tap on a piece of apparatus in order to give it a new name. Few really new principles in anaesthesia in recent years are standing the test of time. Continuous spinal analgesia, which may be one of these, was introduced by Lemmon[1] in 1940, and the principle of continuous regional analgesia has since been applied to extradural analgesia administered through the sacral hiatus.

Single-dose caudal analgesia has never been popular in this country because of the occasional difficulty of inserting the needle, coupled with a high rate of failure, even in expert hands; and it has largely given way to spinal analgesia. To these difficulties the continuous method has added the necessity for keeping the needle in place for periods of, maybe, hours, in a site where infection is difficult to eliminate in a patient lying on his back. The possibilities of infection, broken needles, and inadvertent subarachnoid injection are ever present, and in the literature of continuous caudal analgesia form a disagreeable though prominent triad casting a discouraging shadow over otherwise enthusiastic reports. Hingson and Edwards[2] were pioneers in working out the technique of continuous caudal analgesia for obstetrics. Anaesthesia in labour still leaves much to be desired, and in spite of the technical difficulties enumerated further work on this method is justified, in order that its value may be assessed in relation to other methods of relieving pain in childbirth. A more recent application of continuous caudal analgesia is to abdominal surgery generally.[3] Though there is always plenty of room for improvement, present methods of analgesia for upper abdominal surgery can fairly be described as satisfactory—a description one could not apply to analgesia in obstetrics. It is therefore difficult to justify complicated techniques such as extradural analgesia, paravertebral analgesia, or other unnecessarily complicated means of blocking the intercostal nerves for upper abdominal surgery when the end-result is practically indistinguishable from straightforward spinal analgesia achieved by means of the simple injection with which we are familiar. Southworth and Hingson have published their results of 903 operations, most of them on the lower abdomen, in which continuous caudal analgesia was used. This technique is not for the novice, and it is doubtful whether it will commend itself to the expert who already gets good results from simpler methods.

[1] *Ann. Surg.*, 1940, **111**, 141.
[2] *Anesth. & Analges.*, 1942, **21**, 301.
[3] *Ann. Surg.*, 1943, **118**, 945.

AN INDUSTRIAL REHABILITATION CENTRE

BY

Brigadier F. D. HOWITT, C.V.O., M.D., F.R.C.P.

Consulting Physician in Physical Medicine to the Army

The Ministry of Labour has opened a Centre at Egham for the industrial rehabilitation of male patients. This represents a new experiment in the general field of rehabilitation, and the object is to combine the functions of reconditioning, physical development, restoration, vocational guidance, and purposeful training. It is constructed on the lines adopted in Army practice, which has emphasized the importance not merely of finding a job for a man but of finding the right job for him. It has been realized that the complete employment of available man-power, so essential in total war, demands the complete utilization of the individual. He must be placed in an occupation which fully exercises all his available faculties and not in one which is within the easy compass of his competence. While this holds good for the fit man, it is equally important for the disabled. The Centre is constructed on the lines which the Army has evolved to meet these problems.

Description of Centre

The Centre is situated 1½ miles from the village and railway station of Egham, in 54 acres of park-land. It is under the control of a manager, appointed by the Ministry of Labour, chosen for his wide knowledge and experience of industrial occupations and training. It is equipped with first-class workshops for various building and engineering occupations, and there are also courses for handymen and gardeners. These facilities, which are all under a highly qualified teacher, are used to test suitability for various occupations, and further provision will be made in the light of experience.

The Medical Officer, who has undergone a course of special instruction, discusses the aptitude and potential capacity of each man with the manager. He co-operates with him in the choice of employment, and regulates progression of training on medical grounds—a most important feature in all forms of rehabilitation. He has a staff of medical auxiliaries, including fully trained physiotherapists, and the remedial gymnastics are in the hands of a senior Sergeant Instructor of the Army Physical Training Corps, released for the purpose from a military convalescent depot.

The Centre contains an excellent gymnasium, a physiotherapy department, and a recreation hall. Provision is made for entertainment, and particular attention is paid to the proper use of leisure. The kitchen and catering are under the supervision of a qualified dietitian. Special care is given to the manner in which meals are served, as the psychological effect of this is considerable.

The course is normally of six to eight weeks' duration. It is of an active character and is therefore not suitable for men who are still in the earlier convalescent stages of recovery from illness. The Centre does not provide medical treatment or nursing. The following cases are not accepted: (1) men suffering from infectious or contagious diseases; (2) cases of psychosis or severe neurosis; (3) epileptics; (4) the totally blind. On completion of the course the men go either direct to employment in their previous or in some other occupation, or are transferred to a vocational training centre for a full-time course in the new occupation chosen for them.

The types of case which it is considered would derive benefit by transfer to Egham may be roughly described under the following headings.

Rehabilitation

After all debilitating illness or injury, even when restoration to full functioning capacity is envisaged and will be attained, there is a period between the cessation of active treatment and full employment during which working efficiency remains impaired and accident-proneness is increased. Simple convalescence is not enough. This interval should be bridged by skilfully graduated remedial exercises, directed not only to the restoration of function in the disabled part but also to the mental and physical demands of the future employment. The patient must be progressively and adequately trained so that he can take up a full day's work without fear of relapse or ill effect. This stage can be pursued satisfactorily only when undertaken away from the hospital atmosphere.

Rehabilitation involves the study of the whole man. The physical, psychological, social, educational, and environmental aspects must all be borne in mind. It is one continuous process, beginning at the moment when the patient is deemed to be able to take an active interest in his recovery, progressing through the ambulant stages, and ending with his final hardening to the requirements of his prospective job or of a full-time course of training.

There comes a time, however, in the convalescent stage of all serious disease and disability when an assessment must be made as to whether the patient can return to his former employment, whether some modification of his original work is necessary, or whether a new vocation must be found for him. Men sent to Egham for reconditioning to the demands of their old employment have, in addition to the remedial measures employed, the advantage of graduated vocational retraining in its various workshops. When, on the other hand, the disability is of such a nature as to preclude continuance of previous occupation or some modification of it, another and more suitable job must be found. Here also the centre at Egham offers a unique opportunity of deciding, during the period of reconditioning, the type of occupation a man could usefully fulfil and to which he could gradually be trained. Early reinstatement and training for a definite and specific purpose carries with it an added psychological impetus.

Vocational Guidance and Purposeful Training

The more favoured members of the community are able at an early age to make up their minds as to which trade or profession they wish to adopt, and have the opportunity of pursuing it or of taking up another before it is too late. The less fortunate, because of social or environmental circumstances, or because of a short-term policy of economic return, are often lured into a vocation entirely unsuitable. The disabled man is particularly in need of guidance in the choice of his career, and for this he requires the advice both of a doctor versed in the many-sided aspects of rehabilitation and of an expert conversant with the varying demands of the different branches of industry. It is surprising how inept is even the normal but uninstructed individual in the simplest tasks, such as digging, jumping, lifting, and climbing. When dealing with the substandard, correction of faulty technique may not only prevent further disability but may be productive of considerable economy of energy—a point of great importance to the handicapped man.

The attainment of these objects demands a catholic outlook and a wide appreciation of the responsibility entailed, in accurate and careful selection of employment, assessment of recovery, graduation in training on the physical side, and appraisal of the essential psychological and environmental background. Enthusiasm must be engendered, and the whole-hearted co-operation of the individual must be ensured. These objects can only be attained under the twin guidance of a technician who appreciates the nature of the task and of a doctor capable of assessing functional capacity on anatomical, physiological, and psychological grounds.

Skilled vocational guidance is of particular value to the ex-Service man who has been discharged from the Forces with some residual disability. He may have been a skilled worker before the war; or his Service experience may have kindled an ambition for progressive and skilled work of a kind he had not previously contemplated; or he may have gained some technical knowledge in one of the recognized Service trades. For such a man a disability may appear the end to all his hopes, and, left to himself, he may drift into unsatisfactory employment, with the danger that later on, when opportunities are not so easy as at present, he will become a disgruntled citizen. The psychological factor in such cases is all-important. The atmosphere and expert advice provided at Egham should restore confidence and help the man on the road to a useful place in the working life of the community.

Research

The experiment should provide excellent material, collected and controlled by a follow-through mechanism, for group research on a considerable scale into problems of rehabilitation and re-vocation generally. Much information could be collected with regard to restricted function in a wide field of medicine and surgery that would be helpful as a general guide to occupational placement. It is hoped that the Ministry of Labour will develop a service of this kind in co-operation with industrial medicine—which has already contributed so much—by compiling statistics into the occupations open to individuals with specific disabilities, into the aetiology of minor medical conditions which lead to ill-health and reduced efficiency rather than to disease, and into many and varied problems of common interest.

Admission

The Centre was planned to receive patients direct from hospital or within two to three weeks of their discharge. All hospitals in England and Wales have been circularized by the Ministry of Health. A simple certificate (on a form known as R.D.11) from the hospital authorities is all that is required; it is the duty of the Ministry of Labour representative who attends the hospital to explain the details of the course to the patient and to arrange his journey. Application can also be made at any local office of the Ministry, in which case a certificate (on the form R.D.11) is required from the man's private doctor.

The scheme is a voluntary one. The cost, including full maintenance and instruction and fares to and from the Centre, is borne by the Ministry of Labour. In addition each man receives an allowance

of 24s. a week for himself, with a supplement of 10s. a week for his wife and 4s. a week for each child. An ex-Service pensioner continues to receive his full pension.

Further information can be obtained from any local office of the Ministry of Labour. The manager of the Centre will be glad to receive medical officers and other members of hospital staffs. The address is the Egham Industrial Rehabilitation Centre, Wood Lee, Egham, Surrey, and the telephone number is Egham 880.

It is hoped that both hospitals and industrial doctors will take advantage of this Centre, for the benefit of their patients.

PREVENTIVE MEDICINE: TEACHING AND PRACTICE

INAUGURAL LECTURE BY PROF. J. M. MACKINTOSH

An address on teaching and practice in preventive medicine was given at the London School of Hygiene and Tropical Medicine on June 23 by Dr. J. M. MACKINTOSH, the newly appointed Professor of Public Health, University of London. The chair was taken by Lord WOOLTON, Minister of Reconstruction.

Prof. Mackintosh, who was introduced by Prof. Major Greenwood, began by repeating a definition of social medicine given by Gordon Smith in 1824—"The application of medical knowledge to man in his social state." But the history of public health teaching, he said, went further back than that. In 1786 Johann Peter Frank was appointed director of public health of Austrian Lombardy, and his international fame led to the creation of the first chair of public health in a British university (Edinburgh). Andrew Duncan sen., who became professor of the Institute of Medicine in Edinburgh in 1789, began in 1795 a series of lectures on medical jurisprudence, including "medical police"—a term quite familiar to Scottish ears—in which he dealt with both personal and environmental health. In 1798 Duncan presented a memorial, as the outcome of which in 1807 George III granted a commission creating a professorship of medical jurisprudence and medical police "as taught in every university of reputation on the Continent."

The Diploma in Public Health

The next landmark was the action of the General Medical Council in drawing attention in 1869 to the desirability of inserting in the *Medical Register* a qualification in State medicine, which eventually received sanction in 1886. The action of the G.M.C. was due largely to four men—Henry Acland, Stokes of Dublin, E. A. Parkes, and H. W. Rumsey. But even so opinion was divided. Billroth in Germany, in order to emphasize the value of the basic sciences in medical education, confessed that he was not interested in the struggle for public health, and Welch took this view to Baltimore when he became professor of pathology in 1884, though later, when Welch set himself to organize his new school of hygiene, he said that he was trying to stress the humanistic aspect of medicine because in the past the whole emphasis had been—and he thought the times had demanded that emphasis—on the scientific side.

In England the institution of the D.P.H. arose in response to a specific public need for officers of health when bacteriology opened up a new field of study. A generation ago it was reasonable that medical officers of health should be expected to supervise bacteriological and chemical work. As recently as 1925 one or two medical officers of health were still public analysts for their areas. The immense broadening of the fields of bacteriology and applied chemistry inevitably led to specialization, and medical officers of health, burdened with increasing administrative duties, were forced to leave laboratory work to experts—a tendency accentuated by the provisions of the Local Government Act, 1929, and by the various Housing Acts.

The changes in health policy which took place up to the end of the last war were only feebly reflected in the diploma course. As recently as 1920 British universities, speaking broadly, took no cognizance of the D.P.H. To gain experience in public health administration the student was usually left to shift for himself; the course was not as a rule well knit, and in some cases the teaching fell lamentably behind the needs of applied practice. It had often been said that there was a great gap between the establishment of scientific knowledge and its application to human needs. This was partly due to economic causes, partly to lack of administrative machinery, and partly to insufficient diffusion of knowledge.

Colleges of Preventive Medicine

The primary importance of a school or university department of hygiene, Prof. Mackintosh continued, was to make good practitioners of health, to send out competent men and women with a high sense of their calling and a scientific outlook. It was easy to speak these brave words and difficult to translate them into organized teaching courses, but there were certain guiding principles:

(1) No school or university can create a scientific outlook in its students unless it is actively engaged in research in the basic sciences—that is to say, sciences for the advancement of knowledge irrespective of immediate practical considerations.

(2) The department should direct the application of scientific work to problems of public health—for example, through surveys, routine laboratory investigations, statistical and epidemiological studies, and field experiments.

(3) The department should be strictly associated with current administration, including housing and sanitation, institutions and hospitals, and the everyday duties of the practising M.O.H.

(4) The department should co-ordinate the postgraduate course for the D.P.H. by means of direct teaching of the principles of preventive medicine in order to weld the course into a coherent whole. It was the duty of the professor of preventive medicine to see that the course as a whole was complete, sound in structure, balanced in emphasis, and sufficient as a framework on which to build experience.

The earliest examples of schools designed as colleges of preventive medicine were the School of Hygiene and Public Health at Johns Hopkins University, the University of Toronto School of Hygiene, and the London School of Hygiene and Tropical Medicine. All these drew much of their inspiration from a report prepared in 1915 by W. H. Welch and Wickliffe Rose and presented to the General Education Board of the Rockefeller Foundation, and none of them could have achieved success without that Foundation's support. A school of this kind, especially when it catered for the needs of graduate students, must necessarily have a large staff for teaching and research. It must enlarge its borders far beyond the ordinary university school or department. It should aim at offering exceptional opportunities for graduates, but it should not offer diplomas in special subjects, nor should it directly provide clinical instruction, although it might make arrangements to that end.

Organization of Teaching Courses

The type of organization which best provided for intensive study and research and general instruction was the system of basic and elective subjects which obtained at Johns Hopkins University. This had the advantage of flexibility. As for clinical instruction, the right approach to clinical medicine was through the training of a physician, and this applied equally to tuberculosis, venereal diseases, infectious diseases, maternity and infant welfare, and child health. The health officer must, of course, have enough knowledge of these matters to enable him to administer with understanding the community services which dealt with them. A term of residence in a fever hospital was a valuable experience for a health officer, but it did not of itself make him an expert in infectious diseases, for which he would require a background of medicine and paediatrics. Similar considerations applied to tuberculosis and venereal diseases. The course should be chosen in order to train men and women to be competent administrators both of institutions and of public health services generally; but the course was merely an introduction to administration, and must be followed by practical experience in institutions and health departments. There was a feeling in this country that administration could not be taught academically, and that only what was called practical administration was of any value to the student, but it would be a poor preparation for a career in preventive medicine if students acquired knowledge of a subject without any background of the wider principles of administration.

With regard to teaching, he contented himself with the following headings:

(1) The historical background of the public health and social services.

(2) Central and local government.

(3) Elements of national health policy, including both environmental and personal health.

(4) The law relating to public health.

(5) Principles of medical administration, both institutional and departmental.

(6) Public education in the promotion of mental and physical health.

(7) International health relations.

After describing the White Papers on the National Health Service and on the Government employment policy as "valuable prescriptions from the pharmacy of social medicine," Prof. Mackintosh said that those concerned for the future of public health must be "fearless in devising, ready to cast out intolerance and partisan advocacy, and unafraid of new plans for co-operative action, even when they ran counter to traditions."

Lord Woolton on the White Paper

Lord WOOLTON, from the chair, speaking of the White Paper on a National Health Service, said:

"I understand from the newspapers that certain practitioners in the [medical] profession have some doubts about the conditions of their service under the new plan. I beg them not to be unduly fearful. Terms are a matter of negotiation, but the end at which we are aiming cannot be a matter of controversy. The aim is that to every man, woman, and child in this country all that is best in medical science shall be available. Medical need can have no concern with capacity to pay. The medical profession has a long and glorious career of benevolence in the public service, but in spite of all their best endeavours there remains in our midst much suffering and physical incapacity which I am given to understand is preventable. Common humanity demands that we should address ourselves to this problem and seek and find a solution to it. On grounds of sentiment—which are not to be despised—and on grounds of the economic health of the nation we must deal with this issue of physical ill-health. We cannot afford the loss of capacity or the loss of time that comes from physical disability, and, with great respect, I invite practitioners of this great profession to refrain in discussion from anything which brings about that friction that leads to heat rather than to light. I invite them to join with those of us who are in public office and who are seeking that the way shall be open to an even larger field for their healing skill. For we must succeed. The public good must be served, and the doers of good must have both opportunity and just reward."

Reports of Societies

HOSPITAL PROVISION FOR SMALLPOX

At a recent meeting of the Fever Group of the Society of Medical Officers of Health Dr. ANDREW TOPPING, the President, opened a discussion on smallpox, with special reference to hospital provision.

He said that memories of the ravages of variola major in this country 50 years ago led to the perpetuation of innumerable small *ad hoc* smallpox hospitals, although improvements in ordinary sanitation and control of infection made it unlikely that the disease would ever sweep the country again in epidemic form. As the theory of aerial convection had proved untenable, an occasional case of smallpox, actual or suspected, could justifiably be admitted to a single-bed ward in any modern fever hospital if staff and patients in contact were protected by vaccination. But administrative difficulties might be considerable, and public opinion would weigh against such a practice. The number of reserve smallpox hospitals was needlessly great, and he favoured self-contained units of 4 to 20 beds, with accommodation for observation, within the curtilage of larger hospitals. If an outbreak assumed epidemic proportions all or most of the hospitals could be taken over temporarily for cases of smallpox. A service of experienced consultants was necessary (as already existed in London), also a reserve of vaccinated nursing and ancillary staff bound by their terms of service to undertake duty in smallpox cases if required.

Method of Spread

These views might appear controversial, Dr. Topping continued, but in his view every case of smallpox could be accounted for by ordinary methods of spread *if a complete and accurate history of contacts and movements could be obtained.* Earlier supporters of the theory of aerial convection in the neighbourhood of smallpox hospitals too often ignored the possibility of a breach of control regulations by a member of the hospital staff. On the question of whether vaccination did protect, he said, it had to be admitted that with single-insertion methods they were on less sure ground, but recent experience of major smallpox showed that even minimal vaccination exercised a definite protective or modifying effect. He favoured a return to adequate vaccination standards in the presence of the major disease. Small units in the curtilage of larger hospitals on the lines he had suggested could be used for other purposes when not required for smallpox cases. A larger hospital as second-line or reserve accommodation would be necessary, such as a fever or convalescent hospital whose ordinary patients could be evacuated without serious dislocation. It might be argued that the moment was inopportune to suggest changes of this nature, and that war and the rapidity of modern travel added to the risks of a smallpox outbreak, but he saw no reason to think that an epidemic serious enough to cause a breakdown in public health control was likely. It was preferable to have a comparatively small number of beds ready at short notice with staff and equipment rather than a thousand beds on paper, the majority of which were unstaffed and unusable.

Clinical Picture in Recent Outbreaks

Dr. A. JOE, describing the Edinburgh outbreak of 36 cases, said they fell into two groups: (1) 23 institutional cases, and (2) 13 city cases, of which 5 were direct contacts of other city cases. The source of infection of the institutional cases was never disclosed, nor was the association of these with the city cases or the primary city cases with each other. The rash in its early stages in the first case had much in common with chickenpox, and it was not until it was fully out that a confident diagnosis of smallpox could be made. The second case was sent in as of cerebrospinal fever, and in the first few hours after admission was clinically more characteristic of that condition than quite a number of the 600 cases he had seen since 1940. The clinical types were: haemorrhagic 6, confluent 5, semi-confluent 3, discrete 10, and discrete sparse 12. All the haemorrhagic and 2 of the confluent cases were fatal. The commonest symptoms of onset were headache, chill, nausea or vomiting, backache, and malaise. Pyrexia was usually well marked in the initial stage, and only one definite prodromal rash was seen. The true rash appeared most commonly on the 4th and 3rd days, although it was delayed in some cases until the 5th or even the 6th day, and in certain patients it came out on the sides and root of the neck. The disease followed the usual textbook course. Of 9 unvaccinated patients 2 died, and of 18 vaccinated 6 died; there were no deaths among a further 9 who had been vaccinated or revaccinated. In four of the fatal vaccinated cases more than 50 years had elapsed since vaccination, more than 40 years in another, and at least 24 years in another patient who was suffering from bilateral hydronephrosis when he contracted smallpox. There were 15 cases of successful vaccination or revaccination during the incubation and initial periods of smallpox, 2 of these occurring 12 days before the outcrop of the true rash, thus disposing of the textbook statement that vaccination in the first three days after exposure would always protect. Successful revaccination in one case 7 days before the true smallpox rash failed to avert a fatal haemorrhagic attack. Sulphonamides were used in the treatment of 14 cases. No spectacular results were obtained at any stage of the disease, though there was a relative absence of eye and lung complications, and raw surfaces healed rapidly. When the Glasgow outbreak started every member of the hospital staff was revaccinated, and within a few days of the confirmation of the Edinburgh cases practically all patients except the seriously ill were protected, refusals being only 0.5%.

At one stage of the epidemic the smallpox hospital was nearly full, so it was decided to put the female patients in a separate small pavilion in the fever hospital. This consisted of two modern four-bedded wards with the usual annexes, and the highest number of patients housed at any one time was 6, the nearest building being a fully occupied two-storied diphtheria pavilion 80 feet away. The staff were isolated and accommodated separately from the main hospital, so that the conditions were comparable with those suggested by Dr. Topping. The experiment was completely successful so far as it went, but the number of patients treated was limited, the nursing staff were of the highest order, while the specific immunity against smallpox was kept at a very high level in the patients and staff of the fever hospital. Recent experience of the results of haemorrhagic and confluent smallpox had convinced him that this last condition must be rigidly fulfilled if smallpox isolation was to be carried out within the curtilage of the fever hospital.

Discussion

In the discussion which followed, Dr. W. G. PATERSON said that one advantage of attaching smallpox hospitals to the larger fever hospitals would be ease in providing expert medical supervision. The offensive odour normally associated with severe smallpox was not a feature of recent cases in his care nor had there been extensive scarring. Dr. A. F. CAMERON thought that treatment in small units inside fever hospitals was feasible provided there was (*a*) a reliable staff, and (*b*) complete separation of staff, but the human factor required careful watching. Dr. C. A. BENTLEY'S experience in India was that the erection of *ad hoc* smallpox hospitals far removed from the villages made it impossible to control irregular visiting. In Calcutta the smallpox hospital consisted of two pavilions in the grounds of a general hospital. There was no evidence of spread in the vicinity, but much depended on vaccination and revaccination of patients and staff. A single insertion, he said, could not be relied on to protect against Asiatic smallpox; three or four insertions were required. Vaccination up to 3 days after exposure gave a high, but not absolute, protection.

Dr. H. S. BANKS described a toxic illness of high infectivity among smallpox cases. If this was primary smallpox it did not appear to be transmissible, and he wondered if this meant that infectivity was not high before the focal rash appeared. There would be obvious advantages in attaching smallpox hospitals to fever hospitals, but he thought nobody would wish to treat variola major near a fever hospital without vaccinating all the fever patients. Dr. J. PICKFORD MARSDEN pointed out that Ricketts had never promised immunity to those vaccinated early after exposure to smallpox; preventive vaccination was always to be preferred. The value of sulphonamides was difficult to assess because partial immunity had the same effect on the behaviour of the rash as was often attributed to these drugs. They could add to difficulties because they occasionally produced a rash mimicking pustular smallpox. He stressed the importance of an adequate observation unit which need not form part of the smallpox hospital. He thought the arguments for and against aerial convection were unimportant; what mattered was that the disease tended to spread in the vicinity of smallpox hospitals. Still, a strong case could be made for attaching smallpox hospitals to fever hospitals, but such units should be made completely self-contained.

At the last meeting of the Manchester Medical Society Dr. EDITH PATTERSON demonstrated by cinema film the technique of growing *in vitro* bone cells from fragments of avian embryo bone. The behaviour of the cells which emerge from the explant—macrophages, monocytes, osteoblasts, and osteoclasts—was demonstrated at low and at high magnifications. The similarities of round mononuclear cells to osteoclasts was shown by the similarities of movement and of staining, and the possible relation between these two types of cells was discussed. A group of mononuclear cells, it was shown, could fuse together to form a multinucleate cell, and multinucleate osteoclasts shed small mononuclear cells. Mitosis was easily demonstrable in osteoblasts, but had not in the author's experience ever been seen in an osteoclast. The life of an osteoclast *in vitro* was short. Osteoclasts could "eat" their dead or dying fellows; they could also ingest the protein of the plasma and foreign matter introduced to the medium. *In vitro* they could not be shown to attack bone fragments.

Correspondence

Treatment of Wound Shock

SIR,—In view of the immediate practical importance of diffusing rational ideas on the treatment of wound shock, Dr. Martinez Alonso's letter (July 1, p. 21) calls for comment.

1. *Technique of Blood Transfusion.*—Dr. Alonso suggests that rapid transfusion may be harmful and thinks that slow drips give better results. This is entirely contrary to experience in civil and military casualties in this war. When the blood pressure is low as a result of haemorrhage the sooner it is restored to normal the better, and rapid transfusion is eminently desirable. It is only after the blood pressure has been restored to normal that the transfusion is slowed to a drip.

2. *Definition.*—The second paragraph implies that haemorrhage may *complicate* shock. Most clinical workers are agreed that haemorrhage is the major *cause* of shock in wounded men (Whitby, Wilson, Grant, and others).

3. *Pharmacological Remedies.*—Recent research in this school (*Lancet*, 1943, **1**, 637; *Clinical Science*, 1944, in press) indicates that the human body has mechanisms which maintain an adequate circulation when the blood volume has been *slowly* reduced. The mechanisms probably involve constriction of the peripheral venules to restore an adequate pressure in the great veins near the right heart. A pharmacological substance which would act thus on the venules would go a long way to the solution of the problem of shock. So far such a substance has not been found.

Clinical work, however, is well known to produce remedies before the scientific pharmacological laboratories, and Dr. Alonso's experience is of great interest. In the case he describes the obviously low blood pressure, the "occasional" heart-beat suggesting a slow pulse, and the accompanying unconsciousness make it almost certain that this was an example of vasovagal fainting after haemorrhage. As has been shown in this school (*Lancet*, 1944, **1**, 489), this is a special type of reflex collapse with profound muscular vasodilatation. In this type of "shock" vasoconstrictor drugs such as pholedrine and methedrine may well be of therapeutic value.

In acute oligaemic shock with a low blood pressure and a *rapid* pulse it seems dangerous in our present state of knowledge to recommend pharmacological remedies when the value of adequate transfusion has been so abundantly proved. The excellent transfusion arrangements provided for the Services and for the civil population can be relied on to meet almost any demands.—I am, etc.,

JOHN MCMICHAEL.
British Postgraduate Medical School, London, W.12.

Results of Colles's Fracture

SIR,—In his analysis of Colles's fracture (June 17, p. 807) Mr. S. C. Rogers makes no allusion to the influence of sex upon the prognosis. It has fallen to my lot to see a large number of these injuries in their later stages, and it has been noticeable that the most unfavourable results have all been in women, owing to their special liability to arthritis of the fingers and metacarpo-phalangeal joints. In the worst cases the impairment of grasp was so great as to involve a complete loss of the function of the hand. In all such cases the women had been treated by immobilization of the fracture in plaster-of-Paris for several weeks, usually five or six.

The type of arthritis so common in the hands of women is aggravated both by trauma and by restriction of movement and disuse, and there is evidence that the absence of movement is a more potent deleterious factor than the trauma. I have seen quite a number of cases in which the fracture had not been diagnosed till long afterwards, and in which the only fixation employed had been the household application of a bandage. All of these women escaped the crippling arthritis, so that the hand remained a useful member, notwithstanding the deformity and the impairment of pronation and supination and of the movements of the wrist.

The bad results of prolonged immobilization do not occur in the practice of skilled orthopaedic surgeons, but that they

occur at all makes it desirable to point out that in the presence of Heberden's nodes or other signs of arthritis fixation by plaster-of-Paris should be used with great caution, and only for short periods; five weeks in my opinion is far too long. This warning is not confined to the treatment of Colles's fracture, for a minor injury to the hand in a woman with Heberden's nodes may readily be converted into a grave and permanent disability by the use of a plaster-of-Paris bandage. Above all, complete freedom of movement should be assured to the metacarpo-phalangeal joints, for these joints are liable to a rapid and destructive arthritis without example in any other region of the body.—I am, etc.,

Edgar Allen Institute, Sheffield. R. G. ABERCROMBIE, M.D.

The Site for Intramuscular Injection

SIR,—In one of the latest memoranda from the War Office the writer mentions, almost with tacit recommendation, the injection of penicillin "into the gluteal or other suitable muscles in the usual way." In the *Lancet* for Oct. 16, 1920, I drew attention to "the site for intramuscular injection," and I feel it a duty once again to point out that the gluteal region is a very unsuitable place for this purpose. After the last war several soldiers were the victims of very severe and persistent neuritis or paralysis affecting the great sciatic as a result of the injection of quinine solutions into the nerve instead of into the mass of gluteal muscle. A case in which death resulted from sloughing also came to my knowledge. After the malaria epidemic in Ceylon there were at least two cases of severe secondary haemorrhage from the superior gluteal artery complicating abscess due to the injection of quinine into the buttock and requiring ligature of the main trunk of that vessel.[1] In 1941 A. W. Frankland stated in your columns (*B.M.J.*, **1**, 33) that if solutions of sulphapyridine are administered deeply into the gluteal region there is grave danger of injury to the larger branches of the sciatic nerve. He quoted six cases of foot-drop with varying degrees of anaesthesia, also cases of gluteal paresis so that the patients were unable to fix the pelvis. Quite recently one of our larger provincial hospitals was mulcted in damages amounting to several hundred pounds because a patient developed sciatic paralysis after an injection made into the gluteal region.

May I again urge that the outer side of the thigh is the proper place for such injections. The vastus externus is a very large muscle; it is protected by the fascia lata and is not traversed by any important vessels or nerves. The muscular mass is of large capacity, and as much as 500 c.cm. can be introduced into its substance at a sitting provided the injection is made slowly and deliberately. The technique is very simple. A point on the middle of the outer side of the thigh is selected and the hollow needle is thrust in at right angles to the surface. It is enough to insert it just beneath the fascia lata—a point which can readily be determined by the sensation of the yielding resistance after its penetration or by introducing the needle to an average depth of about an inch from the skin surface. If the needle strikes the bone no harm is done provided always that it is withdrawn for about half an inch before the injection is made. Should necessity demand, injections of small bulk may be repeatedly made into this situation. It would seem reasonable to vary the area of injection by starting near the top of the thigh and working down to about three inches above the knee; or the outer side of the opposite thigh may be used alternately. Of course if a particularly irritating solution is injected or if infection is introduced an abscess may result; but that is about the worst that can happen, and at all events I am unaware of any other complication. As my former house-surgeons B. R. Billimoria and E. E. Dunlop point out[2] the risk of phlebitis and generalized systemic infection associated with rigors is eliminated. I frequently refer to this matter in teaching, whether by word of mouth or in writing, and I feel sure the profession ought to pay some little attention to the problem, for it is of much importance at the present time, when numbers of young men are called upon to assume unwonted responsibility.—I am, etc.,

G. GREY TURNER.

British Postgraduate Medical School, London, W.12.

[1] Paul, Milroy, *Med. Pr.*, 1935, **191**, 265.
[2] *Lancet*, 1940, **2**, 65.

Unusual Ear Conditions

SIR,—I have seen several ears that have been treated with glycerin of carbolic drops in which there have developed large perforations not due in my opinion to any middle-ear disease, and I have suspected a destructive action due to the drops. It has occurred to me that the glycerin, which inhibits the destructive action of the carbolic, may have been omitted or diluted on account of the difficulty of getting it now. Unless it can be certain that the glycerin is in full strength perhaps it would be as well to prescribe drops containing camphor.

Another type of ear trouble seen a lot to-day is that due to gunfire, and this is largely due to no ear protector being worn. The solid rubber plug is not worn because the wearer cannot hear orders, etc., when it is in the ear and cotton-wool is inadequate. A cotton-wool plug loaded with grease is better, but of course a valve protector coming into action only with blast as used in the Spanish War is best.—I am, etc.,

London, W.1. C. HAMBLEN-THOMAS.

Sulphonamides in Otitis Media

SIR,—I am grateful to Mr. G. H. Steele (June 24, p. 854) for his comments on my article of June 3 and for ventilating the subject. I am in agreement with most of his statements and in disagreement with some others, so perhaps the matter requires further clarification.

Much confusion arises from the use of the terms "acute ear" or "inflamed drum"; they really mean nothing at all, and give no indication of the nature, severity, pathology, or site of the otitic involvement. External haemorrhagic bullous otitis or herpes oticus on the one hand, or acute suppurative otitis media on the other, can all be called "acute ears" or "inflamed drums," but in their pathology and indications for treatment they are poles apart. The use of the correct label for each of the many otitic infections clarifies the indications for giving sulphonamides, and there was no intention in my article to convey the impression that they were contraindicated in all types of otitis. If my article is carefully read it will be seen that my remarks applied to acute suppurative otitis media, and my contention is that pus locked up in any part of the ear requires drainage first and foremost, and possibly the sulphonamide drugs later.

You may have acute otitis externa, acute catarrhal otitis media, acute otitis media, or acute suppurative otitis media; you may have some of the fulminating types found in influenza or the acute specific fevers. Are all these types to be included under the label of "acute ears," as if they were one clinical entity? Hence my statement that "wholesale use of sulphonamide drugs in otitic infections is to be deprecated," and this I in no way retract.

Many cases of the catarrhal and acute types are never going on to suppuration and may safely be aborted in the earliest stages by sulphonamides. In such cases the patient may have a fairly severe earache, a raised temperature, no appreciable degree of toxaemia, and is not acutely ill. Examination of the drumhead reveals a much-reddened membrane, possibly with bullae, but usually no bulge. Such cases usually resolve with sulphonamides, and sometimes without them. If they progress unfavourably and the general and local condition deteriorates, then the dosage may have been inadequate or the use of the drug as a first line of attack has been incorrect.

On the other hand, many cases are suppurative almost from the start or will rapidly become so; the patient is ill, the temperature is higher, the pain often very severe, and the evidence of toxaemia obvious. The drumhead bulges or pulsates and the usual landmarks are obliterated. Pus may be seen through the bulging drumhead. I feel that it has been the attempt to abort such infections by sulphonamides that has caused Mr. Steele to be disappointed in myringotomy, which I think should have been the first and not the second line of attack.

One of the reasons why the number of mastoid operations has decreased in recent years, and even before the introduction of sulphonamides, is that otologists are, almost without exception, much more conservative in opening the acute mastoid than they were ten to fifteen years ago. Very many mastoids done at that time would have got perfectly well if they had

been left alone for a few weeks, and I will certainly concede that many other operations of the same nature have been avoided by a judicious use of sulphonamides.

I cannot altogether agree with Mr. Steele that the general practitioner should be the real authority on the value of chemotherapy in these cases. Most otologists require at least a year of otoscopic experience in the department before they are competent to diagnose all the different varieties of acute otitis via the speculum, and valuable as the general practitioner's contribution will always be in his knowledge of his patient and the constitutional aspect of the illness, I do not feel that his opinion on the otoscopic appearances, which are, after all, all-important, can be of greater value than those of the otologist; in just the same way the ophthalmologist's opinion on the fundus oculi must be of greater value than that of the general practitioner.—I am, etc.,

London, W.1. A. R. DINGLEY.

SIR,—Mr. Dingley's able article on the dangers of sulphonamide therapy in middle-ear infections (June 3, p. 747) prompts me to ask certain questions.

Much has been said recently about sulphonamides "masking the symptoms and distorting the clinical picture." What symptoms does a sulphonamide mask and how does it do it? The important *symptoms* of otitis media and mastoiditis are pain and symptoms due to toxaemia. The important signs are the appearance of the drum and the mastoid process, the degree of tenderness over the mastoid process, and the temperature. Surely any drug which relieves pain will do so irrespective of the cause of the pain. Morphine will relieve the pain of a ruptured peptic ulcer and so mask the picture, but I don't think anyone will suggest that sulphonamides will do this. So sulphonamides are not analgesics *per se*. If sulphonamides can mask toxaemic symptoms in otitis media, why are they powerless to do this with a virus—pneumonia, for example? If sulphonamides are antipyretics they should have this effect irrespective of the cause, as a true antipyretic would—e.g., a tepid bath.

To sum up, surely sulphonamides act as analgesics, antipyretics, will relieve toxaemia and reduce all signs and symptoms of disease by destroying the cause—i.e., the bacterial cause. That is why these drugs are so wonderful—because of their bactericidal effect. This does not constitute "masking symptoms and distorting the clinical picture" but curing the disease. Following this line of thought, when the redness of the drum, the mastoid swelling, and the pain and toxaemia are diminished by sulphonamides the infection is necessarily being overcome. Bone infections are notoriously prone to recrudesce, and mastoiditis is no exception. But it is one of the few bone infections which is generally due to the streptococcus and therefore can be influenced by sulphonamides.

If sulphonamides are given in full doses 48 hours will suffice to know whether any benefit can be derived from this therapy. The presence of pus will always indicate surgical treatment, and sulphonamides will not prevent the symptoms and signs due to this pus. I have been giving 1 g. of sulphathiazole every 4 hours, even to the youngest child with otitis media, for 48 hours, and, if the condition is subsiding, a smaller dose until the temperature has subsided and been normal for 3 days. No case which under my care has completely subsided with this treatment has as yet recurred, and operation has been avoided. It is the early otitis media which will respond well to sulphonamide therapy, if in adequate dosage. If Mr. Dingle persuades practitioners to abolish all chemotherapy with these cases he will undoubtedly give the E.N.T. surgeon more work.

I put forward these views humbly, knowing that my experience is as nothing compared with that of Mr. Dingle, but nevertheless hoping my remarks may arouse some criticism and comment.—I am, etc.,

South-Eastern Hospital for Children, Sydenham. CYRIL JOSEPHS.

Timing of Schäfer's Method

SIR,—Study of first-aid manuals brings to light the surprising fact that the timing of Schäfer's method is given differently by different authorities. I refer not to the actual rate of respiration, but to the ratio between the duration of the expiratory and inspiratory phases.

In the Royal Life Saving Society's booklet the following instructions are given: ". . . . Each such double movement will occupy about 5 seconds, two of which may be taken up by pressure (expiration) and three by relaxation (inspiration)." *First Aid to the Injured* (the St. John textbook) also states, "The rhythm is, pressure 2 seconds and relaxation 3 seconds." A different timing is given in *R.A.M.C. Training*, 1935, chap. 37, para. 677, as the following extract shows: "Lean forward . . . and so produce a firm downward pressure . . . on the loins . . . this part of the operation should occupy the time necessary to count slowly *one, two, three*. By this means the air . . . is driven out of the patient's lungs. Immediately after this, swing backwards, rapidly releasing the pressure, when air will enter the lungs . . . this part of the operation should occupy the time necessary to count slowly *one, two*."

No doubt either method of timing might be equally successful in practice, but surely there should be uniformity in teaching! I consider that the timing given in *R.A.M.C. Training*, 1935, is to be preferred for two reasons. First, it reproduces the normal respiratory rhythm, in which a pause of about one second occurs at the end of expiration. Secondly, it is practically identical with the timing given for Eve's rocking method, in which the head-down phase (expiration) is longer than the foot-down phase (inspiration). The advantage of having one timing for both methods will be obvious to all who teach first aid.—I am, etc.,

Crowthorne, Berks. E. F. CHAPMAN.

Chemoprophylaxis of Gonorrhoea

SIR,—With reference to Dr. Forgan's letter in your issue of June 24 (p. 855) two points arise.

(1) If "a warning is wisely uttered against the use of oral sulphonamides for this [prophylaxis] purpose" does not mean much the same as "this method of prophylaxis is not without danger" words have no meaning, though perhaps "concerning" would have been a more suitable word than "against."

(2) If medical practitioners are *not* dissuaded from prescribing on the day following exposure 6 g. of sulphathiazole or sulphadiazine one is led to wonder how many individuals will become sensitized to these drugs and how much latent gonorrhoea there will be amongst the population.—I am, etc.,

YOUR REVIEWER.

Industrial Dermatitis

SIR,—Dr. Howard Mummery in his memorandum on the prevention of industrial dermatitis (May 13, p. 660) states: "Barrier creams, for which so much is often claimed, have their uses, but in my experience they are disappointing, and necessarily depend too much on the intelligent co-operation of the workman." Barrier creams hitherto available have been disappointing, but modern creams can and do afford an efficient barrier against causers of industrial dermatitis.

The washing facilities which he claims are available in his factories appear to be greater than those available in most industrial organizations. This company employs in its machine shops many hundreds of workers who come into daily contact with cutting oils, soluble oils of various types, and organic solvents, and as the result of methods employed to prevent dermatitis, even when facilities for washing were not perfect and including the many thousands of workers in our assembly plants who come into contact with such dermatitis causers as plastic varnishes and cements, alkalis, acids, etc., there have been only two cases of notified industrial dermatitis during the past year. There have been a number of rashes of various types due to sensitization from industrial products and also exacerbations of exogenous dermatoses due to varying causes. These have all been treated on modern dermatological lines with no loss of working time.

Dr. Mummery's method of cleaning demands just as much co-operation from the workers as does the use of a barrier cream, and I feel that had the correct barrier creams been employed there would have been no need to use any special cleanser beyond the ordinary methods available in most engineering shops. The suggestions made by Dr. Sybil Horner, H.M. Medical Inspector of Factories, for the prevention of

industrial dermatitis are in my opinion the best to date—i.e., (*a*) selection, (*b*) protection, (*c*) inspection, and (*d*) cleanliness—and until all of these are adopted in industry the position with regard to industrial dermatitis will not improve.

I am keeping a record of those cases of industrial dermatitis which present themselves to the skin department of the Royal Northern Hospital, and it is interesting to note that practically all come from small factories with few employees, and in many of these no facilities are provided for washing beyond a bucket and some cold water. All types of reagents are used, and there appears to be no selection of the operator for the work in question and no prevention is adopted as cases recur in these factories. There appears to be little or no co-operation between employer and employee. Industrial dermatitis should hardly exist in large factories, because with adequate supervision and prevention the problem is not a difficult one to overcome.—I am, etc.,

L. B. BOURNE,
Medical Officer, A. C. Cossor, Ltd.

London, N.5.

Inquiry into Diabetic Care

SIR,—The Diabetic Association has recently circularized many hospitals in Great Britain with the object of discovering the nature and extent of the facilities at present available for the care of diabetics in this country. The association is eager to make this survey as complete as possible. May I, therefore, through your columns, ask any individual practitioners, clinics, or hospitals who provide such facilities and who have not already received the association's circular to write to the secretary, the Diabetic Association, 9, Manchester Square, London, W.1, so that the circular may be sent to them.—I am, etc.,

C. M. FLETCHER,
Secretary, Medical Subcommittee, Diabetic Association.

The Cat's Milk

SIR,—A month ago our cat had kittens, and this event set me pondering again about the increasing failure of women to suckle their babies. Breast-feeding has always been more easy among the poorer classes, and usually in domiciliary than in hospital practice, though everywhere it is decreasing in spite of propaganda, increased food, vitamins, expert attention, etc. Why? The cat certainly had no difficulty in establishing adequate lactation. Once again, Why?

The thing that struck me most forcibly was the instinctive way in which the kittens, almost as soon as they were born, found their way to the cat's nipples and began to suck. Is it possible that the close nestling of the kittens against their mother and the frequent stimulation of her breasts had an important influence in promoting lactation; and is it possible that the relatively modern practice of removing the baby at once to a cradle is really the main reason for the present difficulty in breast-feeding? We all know how palpation of a breast will cause stimulation and erection of the nipple, and we also know that tactile stimuli in other areas will cause all sorts of emotions and alterations of function. It is, therefore, not inherently improbable that our modern methods of treating parturient women are actually removing those very stimuli which Nature has depended on for the efficient establishment of lactation. I am not asking for the vituperation of obstetricians for this suggestion (though I may get it), but I should like to know whether there are any reliable data on the subject, for in view of its importance and the recently proposed national maternity service our leaders should surely be able to give an unequivocal and scientifically supported answer.—I am, etc.,

W. N. LEAK.

Progesterone

SIR,—Mr. D. G. W. Clyne seems to suggest (June 24, p. 856) that I claim for my own the progesterone causation theory of vomiting of pregnancy. In my necessarily short note on that subject (June 3, p. 772) I made no such claim, nor on re-reading it can I or my colleagues see that any claim is implied. I was taught as a student that one of the many theories on causation of vomiting in pregnancy was excess progesterone/deficient oestrin. Since then I have tried the effect of progesterone on isolated rabbit's intestine. Relaxation was produced, but as I was unable to persuade the gut to regain its tone I could not be sure that the effect was physiological rather than toxic, and therefore did not pursue the matter.

I acknowledge the value of personal communications from Mr. Clyne, in one of which he pointed out the further ramifications of the progesterone theory. If I did not then assume that he claimed it as his own, why should he now impute the claim to me? That this inference from my note is not universal is proved by Dr. W. I. Hardy (June 24, p. 862). He says: "Dr. Calvert *supports* the theory . . . etc." (my italics).

It emerges that Dr. Hardy also *supports* the theory, of which he was obviously previously aware. So apparently does Mr. Clyne. If, as he says, Mr. Barton Gilbert originated it, then we all, no doubt along with many others, support Mr. Barton Gilbert.—I am, etc.,

WALTER CALVERT, D.R.C.O.G.

Stockport.

Why Tie the Cord?

SIR,—In answer to Dr. E. W. Price (June 3, p. 772) I would say there is no need to tie the cord if the scissors are *blunt*. Animals nip the cord with their teeth; many native races pinch it off with their nails or use a shell or bit of tin. It is the crushing of the tissues that stops the bleeding. In France (Benouville Maternity) a small clamp was used for 24 hours only.

I should like to ask Dr. Price if he does not find leaving the maternal end to bleed an advantage. In the natural position, squatting or kneeling, this diminishes the bulk of the placenta and should lead to early expulsion and good uterine contraction.—I am, etc.,

KATHLEEN VAUGHAN.

London, N.W.11.

Marriage and Parenthood

SIR,—In saying that contraceptive advice may very rarely have to be given to a couple before the birth of their first child, Dr. Saklatvala (April 29, p. 603) raises an old hare which I do not propose to follow except to say that contraception having come to stay it is our duty to see not only that the public use it with discretion and purpose but that they know what to use, when to use it, and how to achieve maximum security—the possibility of which is now extremely high. Thus, as almost every young couple consider these matters and are always trying to get adequate information, it is our duty as doctors to give them the best advice we can, and, if they require further help, to see that they get it from the best sources.

Incidentally, when are doctors going to discontinue the habit of advising women about contraception without examining them, or of fitting them ineffectually when they do examine them? They would never treat an eye condition so haphazardly. Why do they, therefore, the sex organs? If they cannot do the job properly why not send them to people who can? The misery and unhappiness that follow from ineffective advice are often profound and quite unnecessary. But the problems of contraception are only part of marriage preparation which, besides considering matters of general health and eugenics, must concern itself with the state of the hymen, effective technique, and the removal of various fears and anxieties in one or both partners. These are the important things and they take time.

When Dr. Saklatvala says "because coitus is being practised for some aim short of its natural purpose" and that there are "psychological barriers to the full play of the instincts which, in the last analysis, will be a sufficient guide to the young couple" he is on more interesting ground. What is the "natural purpose" of coitus? In animals it is an instinctive process necessary to reproduction. Human beings, however, have minds and spirits, and so to them, in its highest development, coitus is something far more profound. It is a means of expressing mental and spiritual unity, as well as a means of continuing the race. Both have equal importance in marriage. It is extremely important to make sure that there is a true release of emotional tension, and it is because this is so rarely achieved that so much disharmony develops later on. To my mind, the "psychological barriers" to which he

refers are precisely these anxieties and fears which must be removed before full emotional relief is obtained. The instincts by themselves are not "sufficient guide to the young couple." They must learn how to use them properly. This takes time, varying from a week to six months, and it is essential to achieve this before the first pregnancy is well established. I agree, of course, that a couple should prove their fertility early, but if they have established a real emotional rhythm early they will have something valuable to return to twelve months later, and the women are not "put off" or "frigid."

The way in which we handle these matters is the crux of the whole thing. It is because so many doctors will not accept these facts or deal with them so unsatisfactorily that the troubles arise to which Dr. Wrathall Rowe (May 6, p. 636) draws attention—namely, that people will not ask doctors about their sex problems. I hardly ever address a meeting of young people at which I am not asked: "What is the use of advising us to go to doctors if the doctors will not help us?" They have tried so often and been given such poor or unsympathetic advice that they naturally go elsewhere. This is hardly to be wondered at when we realize that the problems of sex and marriage are scarcely touched upon in our medical schools. Is it not time that we put our house in order and concerned ourselves with the prevention of disharmony and frustration? This can only be done by a consideration of the practical and the psychological. If the problem is important before marriage it is even more so after the birth of the first child, when so many difficulties need adjustment, especially in the sexual sphere.

Dr. Rowe is right when he draws attention to sex education, because it is here that we have an opportunity for really constructive work. The teaching of facts—the giving of sex instruction—however, is not enough. The education must be progressive, and the parents must be encouraged to help. It must start in the home and proceed by gradual stages from factual information to a consideration of emotional development; and end with the presentation of certain principles of sexual behaviour designed to help the individual in his personal life and also in the wider sphere of citizenship. Its purpose must be directed towards the strengthening of the family unit. Here is a field of work which the profession should enter more fully. Now that the authorities, and especially the Board of Education, have given encouragement to the work we should seize the opportunity of putting across some really constructive information. I know from personal experience that such efforts are welcomed by young people, provided the teaching is adequate and unemotional. Dr. Blackett Jeffries (May 27, p. 730) sums up the situation admirably when she says that knowledge does not ruin romance in marriage any more than does the study of technique spoil the artistic joy in self-expression. I would merely add that it enhances it.

Can we not begin to visualize the family as an entity and treat it as such? Friction between husband and wife, often having its origin in sex maladjustment, frequently transfers itself to the children and stimulates discord and delinquency. If we paid more attention to reconciliation we should not have to give out so many bottles of medicine to so-called neurotics.—I am, etc.,

London, W.1. EDWARD F. GRIFFITH.

Migraine simulating Appendicitis

SIR,—During the past few months I have seen two patients who complained of symptoms which clearly indicated that they were suffering from migraine. Both, peculiarly enough, had had their appendices removed at some time or other. On careful inquiry into their previous history I am convinced that both were suffering from early attacks of migraine when they were diagnosed as appendicitis and the organ in question removed. I have heard of attacks of migraine starting after appendicectomy, but have not heard, or read, of early migraine simulating appendicitis. The case histories are as follows:

A. Male aged 29. About 9 months ago had an attack of lassitude, nausea, abdominal discomfort, constipation, and dull headache. Next day he had several attacks of vomiting. Symptoms cleared up in about 24 hours. A few weeks later a similar attack occurred, and on abdominal palpation by his doctor he stated that he was slightly tender all over and more so in his right side. He was operated on a few hours later and his appendix removed. No clue to the findings could be obtained. Since then similar attacks have occurred at intervals with headaches becoming more pronounced.

B. Male aged 47. Gave a very similar history to Case A. He had his appendix removed some 20 years previously, and stated this was done after either one or two attacks identical with those from which he still suffers at intervals and which are undoubtedly migrainous.

It would seem quite easy to mistake an early stage of migraine for an acute or subacute appendicitis. The headache, which was evidently not the patient's chief complaint before operation, was presumably due to the constipation from which he was suffering. The slight or marked abdominal tenderness could be explained by the repeated attacks of vomiting.—I am, etc.,

J. S. BOYD, M.B., B.Ch.,
Fl. Lieut., R.A.F.V.R.

Heat Hyperpyrexia

SIR,—Referring to the note by Dr. F. R. W. K. Allen in the *Journal* of Jan. 22, 1944—"Resuscitation by Rocking for Heat-stroke"—I would like to refer to an abbreviated article you kindly published for me on June 12, 1920. In this article the procedure as suggested by me was carried out in all cases treated by our unit during the campaign in Mesopotamia, 1916. There were no fatal cases so treated.

In heat hyperpyrexia the respiratory centre is seriously affected. If this centre cannot be made to function then the patient will die—irrespective of whatever other treatment is carried out. The utmost speed is essential in this treatment. Briefly, it was this:

Strychnine 1/60–1/15 gr. was injected hypodermically immediately. This was given to start the functioning of the respiratory centre, and so indirectly keep the heart going. Immediately after this Schäfer's method of artificial respiration was carried out. This was not stopped until the patient vomited. This symptom was invariably the sign of recovery. External lavage of the patient was then carried out—the patient resting on a stretcher across a trench—and river water poured on him so that he eventually became half submerged. The temperature was taken in the rectum every minute and the lavage was not stopped until the temperature registered 101° and remained steady at this level. After-treatment consisted of wrapping the patient up in a calico sheet and keeping this wet until he was evacuated to a suitable hospital. Fruit juices and fluid diet in generous quantities were administered.

I have again mentioned this treatment in the hope that it may be of some use in tropical warfare.—I am, etc.,

Kingston, Jamaica. JOHN N. MCINTOSH,
Capt., R.A.M.C.(ret.).

"Merely Dyspepsia"

SIR,—For fairly obvious reasons there appears to have been a noticeable increase in abdominal cases since the beginning of the present conflict. Particularly do I refer to the "indigestion" with mild intermittent symptoms, which may seem so little and may mean so much.

Provided patients will seek medical advice in time, I do not think the necessity for radiological examination can be too strongly emphasized for all patients of from early middle age onwards whose abdominal symptoms do not clear up within a month. Only so can the possibility of early malignancy be excluded, and every such case must be considered "guilty" until it is proved "innocent." It is here that a great responsibility devolves upon the general practitioner who first sees the patient. No "label" must be attached to these symptoms, which, if not a cover for ignorance, indicates, what is worse still, a want of thoroughness. It is only to be regretted that so many patients strive to find a temporary relief in certain well-advertised trade preparations, until the time for surgical intervention is past for ever.—I am, etc.,

Romford. W. DAVAN NEILL.

F. Ellinger and H. Landsman (*N.Y. St. J. Med.*, 1944, **44**, 259) state that among 1,280 cases of diabetes 39 cases of malignant growths were found. This cancer incidence of 3.04% agrees with a cancer incidence of 2.95% among 14,332 cases of diabetes collected from the literature. Since the cancer incidence in the State of New York was 0.46%, this means a decidedly higher cancer incidence in diabetes. As in previous observations a more virulent course of malignant growth was found with increasing severity of the diabetic condition.

Obituary

HUGH THURSFIELD, D.M.

Dr. W. P. S. BRANSON sends the following personal tribute:

Hugh Thursfield is dead, and many of us old-timers will be conscious of the chill that marks the passage of a warm and friendly spirit from its accustomed place. "Pobo," to use the queer nickname which came with him from Oxford to St. Bartholomew's and remained with him thereafter, was unusually equipped. Having already taken a degree in classics before he turned to medicine, he was a good deal older than his time. Thus he was able to diffuse something of his greater maturity and culture into the frequent arguments by which we youngsters sought to put the world to rights forty years ago. In those days, when political temperatures ran higher than they do now, and Radicals and Tories could be told apart, he was a Radical, while others of us were not. So it can be imagined how massive, and often indignant, were the contributions to the country's betterment which we wasted upon the seagulls along the Embankment as we walked home from Bart's of a Saturday afternoon. For Pobo was outright, even to abruptness, and sincere in all he said or did: with one playful exception, when he would trail his coat in order to provoke a friendly adversary.

Things went hardly for him in the way of promotion at Bartholomew's, for, being already older than others of his year, he fell victim to a spell of long stagnation in staff movements there, and thus remained far too long (for his great deserts) in subordinate teaching offices. Yet he never grumbled, nor thought meanly of the humdrum tasks that fell to him at that time, but held on, patiently keen, and thorough, and good-tempered. Indeed he was a grand fellow to know, and to have known: a man who could read the Odyssey through in the original once a year and thought it the "finest story in the world"; who was a good judge of claret, and for many years the moving spirit of the quarterly dinners of the Fellows' Club of the Royal College of Physicians; who was one of London's select company of bird-watchers and a regular visitor to the varsity rugger match. Humane, hospitable, companionable, and generous, he loved everything of good report, especially "laughter and good company"; and the long record of his paediatric and other writings bears witness to his ceaseless diligence.

Mr. W. MCADAM ECCLES writes:

In the excellent review of Dr. Thursfield's medical career there is one fact which does not come out clearly. Thursfield commenced his medical studies at a somewhat later age than is usual. He qualified in 1897, being 28 years old. He was elected assistant physician to St. Bartholomew's in May, 1913. By that time the retiring age for the medical staff had been reduced from 65 to 60. In 1928, when it was seen that he had no chance of being a full member of the staff, he was on July 26, 1928, by special decree, promoted to be a full physician, finally retiring on July 31, 1929, when he reached 60. Apparently these circumstances are unique in the history of the ancient hospital.

Clun and district have suffered a serious loss by the death on May 17 of Dr. HAROLD ROBERT CROSS at the age of 70. His vigour of mind and body was maintained until a few months of his decease. He was a product of the Leeds General Infirmary, qualifying in 1899, and specialized in lunacy. After serving at the Clayton and then the Wakefield Mental Hospitals he was for 19 years senior medical officer at Storthes Hall. A correspondent writes: Dr. Cross's 23 years' work at Clun in Shropshire will remain a loving tradition. He was there, incidentally, attached to Holy Trinity and St. Katherine's Hospitals. Outside his medical work, which he dearly loved, he threw himself whole-heartedly into the life of the community. He was ever a student and had the gift of an encyclopaedic mind.

Dr. DOUGLAS VERCOE HAIG, who died on May 27 at Middleton St. George, Co. Durham, was born at Ahmednagar, Bombay, in 1873. He was educated at Bedford Modern School and Merchiston Castle School, Edinburgh, and at the University of Aberdeen, where he graduated M.B., C.M. in 1895 and took the M.D. in 1901. After house appointments at the Royal Aberdeen Hospital for Sick Children and the Cotswold Sanatorium for Consumption he was honorary anaesthetist to the Darlington Hospital for 10 years, and later, for a short time, honorary assistant surgeon. Before the last war he had had 6 years' service in the Territorial Force, and in 1915 went to France and afterwards to Belgium and Germany as major, R.A.M.C.(T.F.). Dr. Haig joined the B.M.A. in 1901 and served as representative of his Division at the Annual Meetings in Liverpool, 1912, and Aberdeen, 1914. Up to the time of his death he was medical officer to Messrs. Pease and Partners, Ltd., Darlington.

Dr. MARK LOUIS MILLER THOMSON, who died at Hoddesdon, Herts, on May 31, had been in practice there for the past twelve years and had an established position both as a general practitioner and as a citizen. Born at Steppes, Scotland, in 1901, he graduated M.B., Ch.B. of Glasgow University in 1923. He was first in practice as an assistant at Shipley, Yorks, and later at Pelaw, Newcastle-upon-Tyne. In Hertfordshire he found the type of practice which seemed to him ideal, giving plenty of scope for a wide range of medical activities and enabling him to take an active interest in his patients and in the affairs of the community. He was for some time a member of the local Urban District Council and was instrumental in setting up a public library, which has been very much appreciated by the people of Hoddesdon. His practice steadily increased, and at the time of his death he was, without question, one of that group of general practitioners to whom the term "family doctor" particularly applies and to whom it meant a vital concern for every sick person under his care. His cheerfulness and charm were appreciated in every home in the district. This and his wide interest in the present and future position of the medical services were also appreciated by his medical colleagues, and he had recently been elected deputy chairman of the East Hertfordshire Division of the B.M.A. Dr. Thomson had had no illness of any kind, and his very sudden death at such an early age has robbed Hertfordshire of one whose devotion to medicine and determination to keep abreast of modern developments must be a great loss. He leaves a widow, Dr. E. M. Thomson, who is continuing in the practice, and three children. His attitude to medicine is perhaps best reflected in the fact that his two sons are already determined to follow him in the medical profession.

Dr. GEORGE BERTRAM BARTLETT, formerly professor of pathology in Capetown University, died on June 3 at Dorchester. He was born near Blandford on April 9, 1880, the second son of Arthur Bartlett of Wimborne, and from Weymouth College went to Sydney Sussex College, Cambridge, where he graduated B.A. in the Natural Sciences Tripos of 1902. His clinical course was taken at the London Hospital, and two years after qualifying in 1906 he was appointed assistant director of the Pathological Institute there and in 1912 lecturer on pathological histology in the medical college. During the last war Dr. Bartlett served first with an infantry regiment and then joined the R.A.M.C., working as pathologist to No. 21 General Hospital, Alexandria, and to No. 27 General Hospital, Cairo. Between these two appointments he was posted for some months to the malaria laboratory of the 4th London General Hospital. In 1920 he went to take up the vacant chair of pathology at Capetown University, where he remained until 1924. After retiring from active work he lived at Hove, and spent much time in open-air pursuits.

Dr. HERBERT MARTIN BERRY, well known as a radiologist, died on June 3 at Staines, aged 65. A student of University College, Liverpool, he graduated M.B., Ch.B. of Victoria University in 1902, and took the M.D. of Liverpool University in 1914 and the D.M.R.E.Camb. in 1921. Martin Berry was a pioneer medical worker with *x* rays. In the 'nineties he left general practice in Staffordshire to specialize in radiology in London, and he was for some years chief assistant in the *x*-ray department of St. Bartholomew's Hospital under Hugh Walsham. During the last war he served as captain, R.A.M.C., at the Herbert Hospital, Woolwich. After returning to civil life he held appointments as radiologist to a number of hospitals in and around London, including the Hospital for Women, Soho Square, the Dreadnought Hospital, the Mount Vernon Hospital, and the Waterloo Hospital for Women. He had joined the B.M.A. in 1912 and was a member of the Roentgen Society and the British Association for Radiology and Physiotherapy.

A veteran member of the profession in Scotland, Dr. DAVID HUSKIE, of Moffat, Dumfriesshire, died on June 7 in his 81st year. He was educated at Dollar Academy and at Edinburgh University, where he captained the University rugby XV. He graduated M.A. in 1884, M.B., C.M. in 1888, and was elected F.R.C.P.Ed. in 1926. Dr. Huskie took a keen interest in local affairs and was provost of the borough of Moffat from 1911 to 1929. He was chairman of the trustees of Moffat Cottage Hospital, and it was largely due to his efforts that the hospital was built. He was an honorary life member of the St. Andrew Ambulance Association and a J.P. for Dumfriesshire. He

joined the B.M.A. as long ago as 1890, was a past president of the Border Counties Branch, and served for ten years before this war on the Insurance Acts Subcommittee for Scotland. He retired in 1940 after 50 years in active practice.

Dr. GEORGE BLACKER MORGAN, who died on June 8, aged 80, was honorary physician to the Sunderland Royal Infirmary from 1905 to 1923, when he was made consulting physician. The son of Dr. G. B. Morgan, J.P., he was born at Sunderland on Dec. 1, 1863, and was educated at Aysgarth and Repton Schools and at Trinity College, Dublin, graduating B.A.Dub. in 1887, M.B., B.Ch., B.A.O. in 1889, and M.D. in 1907. He returned to Sunderland in 1889 as house-surgeon to the Royal Infirmary, and after his appointment to the visiting staff became consulting surgeon to the Sunderland Maternity Home and medical adviser to the Durham Coal Owners' Association. During the last war he served as medical officer to the Sunderland War Hospital. He took a warm interest in the local reformatory and industrial schools, for which he acted as honorary medical consultant.

Dr. WILLIAM NORMAN MAY, who died on June 12, aged 62, after an operation at Reading, graduated M.B., B.S.Lond. from Guy's Hospital in 1904 and took his M.D. in 1906. After house appointments at Guy's he was resident medical officer to the East London Hospital for Children, Shadwell. He held a commission as temporary captain, R.A.M.C., in the last war; afterwards he made his home at Sonning-on-Thames and was appointed honorary physician and physician-in-charge of the skin department of the Royal Berks Hospital, Reading, and specialist in tropical diseases for the Reading area under the Ministry of Pensions. Dr. May joined the B.M.A. in 1909 and was a past president of the Reading Pathological Society. A keen student of bird life, he was a member of the British Ornithological Union and Club.

The death occurred in Capetown on June 15 of Dr. CHARLES ARTHUR WILSON RAMSAY, a well-known medical practitioner in Salisbury, Southern Rhodesia, for more than twenty years. He was born in Belfast in 1894 and took the degrees of M.B., B.Ch., B.A.O. at Queen's University. After serving with the R.A.M.C. in the last war he went to the Colony in 1920 and settled at Salisbury. Dr. Ramsay was honorary consulting physician to the children's ward of the Salisbury General Hospital, and for two years president of the Mashonaland Branch of the British Medical Association. A keen golfer, he won the Royal Salisbury Club Championship in 1941.

Dr. LEWIS JOHNSTONE WEATHERBE, who died in retirement at Worksop on June 15, had been medical officer to the Rotherham Rural District Council for 38 years. Born at Halifax, Nova Scotia, on Feb. 16, 1867, son of Sir Robert Weatherbe, he was educated at Edinburgh University, graduating M.B., C.M. in 1890. During the South African War he served with Paget's Horse, and in the war of 1914–18 he held a commission in the R.A.M.C. for two years. In 1920 Dr. Weatherbe gave up private practice and devoted the whole of his time to the work of M.O.H., which he relinquished on grounds of health in 1935. During his long association with the Rotherham R.D.C. the district developed from a truly rural area, and he was responsible for introducing many measures for the benefit of the inhabitants.

Mr. SAMUEL WILFRID DAW, who died on June 19 at Polegate, Sussex, where he had been living in retirement, was formerly orthopaedic surgeon to the General Infirmary at Leeds and consultant in orthopaedics to the Leeds Education Committee and Public Health Department. He qualified from Guy's Hospital in 1906, taking the English Conjoint diplomas and the M.B., B.S. degrees of London University; two years later he obtained the F.R.C.S. After serving as resident surgical officer at Guy's he held the corresponding post at the Leeds General Infirmary, and later became surgical registrar there and surgical tutor in the University. Besides his work at Leeds Mr. Daw was also consulting orthopaedic surgeon to the Batley Hospital, the Clayton Hospital, the Wakefield and Dewsbury Infirmary, and surgeon to the Kirbymoorside Orthopaedic Hospital. He was a Fellow of the Association of Surgeons and a member of the British Orthopaedic Association. At the Annual Meeting of the B.M.A. at Nottingham in 1926 he held office as vice-president of the Section of Orthopaedics.

We regret to announce the death at the age of 47 of Dr. ARTHUR JOHN SMYTH, medical officer of health and school medical officer for the borough of Cambridge, and superintendent of the infectious diseases hospital. Dr. Smyth had his medical training at Cambridge University and St. George's Hospital, qualifying M.R.C.S., L.R.C.P. in 1923. He graduated B.Ch. at Cambridge and took the D.P.H. two years later and the M.B. degree in 1931. Before entering the Public Health Service as assistant M.O.H. for the Godalming district he had been house-physician to the Victoria Hospital for Children, Chelsea, and house-surgeon, house-physician, and casualty officer at St. George's Hospital. He joined the B.M.A. in 1926 and was elected chairman of the Cambs and Hunts Division a year ago.

The tragic death through enemy action of Dr. JAMES FETTES and his wife came as a terrible shock to his many friends. J. H. writes: I have known James Fettes intimately for many years and he became a real friend of my family. He had that cheerful, happy disposition which endeared him to his patients and to all who met him. He was a sound clinician, an extremely hard worker, and was deeply interested in the future of medicine and the welfare of his medical colleagues. As chairman of the City Division of the B.M.A. he did sterling work in upholding the high ethics of the profession. His cheerfulness, ready wit, and unfailing kindness will be sadly missed.

News has reached this country of the death on April 9, at a tea estate in Dooars, Bengal, of Dr. BURGESS BARNETT, whose name became well known some years ago through his work on the medical use of snake venom. He was born at Camberwell on April 10, 1888, and from Marlborough College went to St. Bartholomew's, qualifying M.R.C.S., L.R.C.P. in 1915. After serving as house-physician at Bart's he was a temporary captain in the R.A.M.C. for two years and then practised in the Lobitos oilfields of Peru, where he made a special study of snakes. In 1932 the Council of the Zoological Society of London appointed him curator of reptiles; after holding this post for five years he resigned it to devote his time to further research on snake venom and its application in medicine. In 1938 he was appointed superintendent of the Zoological Gardens at Rangoon, where a new reptile house was being built and a snake farm for the collection of venom. He wrote the article on snake-bite for the *Index of Treatment* in 1940 and published several papers on the haemostatic uses of snake venom. In May, 1943, Barnett was awarded the M.B.E. for bravery in Burma, when, as principal medical officer of the Burma–China railway construction, he stayed behind with refugees during the evacuation through the Chankan Pass and tended them on a long and perilous march.

Universities and Colleges

UNIVERSITY OF CAMBRIDGE

The following candidates have been approved at the examination indicated:

FINAL M.B.—*Part II (Principles and Practice of Physic, Pathology, and Pharmacology)*: T. S. L. Beswick, R. H. Boardman, D. G. Bratherton, D. Brazier, A. Comfort, G. S. Crockett, P. D. B. Davies, P. J. De Vescovi, J. A. Dudgeon, D. A. W. Edwards, M. A. Floyer, P. H. Friedlander, J. W. Fullerton, C. R. H. Green, J. A. Harrington, C. E. Hartley, S. M. Hilton, R. F. Hollick, N. S. Hooton, W. R. Horsfall, G. I. C. Ingram, R. E. Irvine, J. Lorber, M. B. Matthews, J. R. May, J. M. Morgan, M. Newton, K. N. V. Palmer, P. B. Philip-Smith, D. A. Pond, P. D. G. Pugh, G. F. Roberts, J. Roche, B. Schofield, J. A. Shiers, J. F. N. Sidebotham, C. A. Storr, J. M. Stowers, M. Symons, R. G. Turner, D. R. D. Vanstone, B. H. Vawdrey, D. G. Veater, P. Venables, S. M. Vine, P. R. Westall, A. P. Wingate, L. Wolman, G. S. Yeoh. *Women*: R. C. A. Hunter, R. S. Mitchison, M. M. Turnstall-Behrens.

UNIVERSITY OF LONDON

LONDON HOSPITAL MEDICAL COLLEGE

Essays for the Liddle Triennial Prize, value £120, must reach the Dean of the London Hospital Medical College, Turner Street, E.1, not later than July 31, 1946. The prize is open to public competition and the subject for the next award is "Epidemic Jaundice." A statement of the conditions may be had on application to the Dean.

UNIVERSITY OF EDINBURGH

At the last meeting of the University Court intimation was made of a bequest for the establishment of a bursary, to be awarded each year to the medical student of the university who has within the year passed the third professional examination and has obtained the highest total aggregate of marks in the first, second, and third professional examinations. For this purpose the late Miss Margaret Campbell Stirton left a share of the residue of her estate, the bursary to be named in memory of her father, the late James Stirton, M.D. The amount of the bequest is estimated at about £2,500. The Court, in accepting the endowment, remitted to the Faculty of Medicine to prepare regulations for the award.

The Services

Temp. Surg. Lieut. R. C. P. Aldridge, R.N.V.R., has been mentioned in dispatches for coolness and energy in dealing with the injured when a hospital ship was hit by a bomb and all the other medical officers were wounded.

Capts. (Temp. Majors) E. F. Claridge and V. J. Downie, and Capts. J. H. Brown, E. J. D'Arcy, G. E. David, W. Lamb, C. J. Mill-Irving, G. E. Pinkerton, and E. G. Turner, R.A.M.C., have been awarded the M.C. in recognition of gallant and distinguished services in Italy.

CASUALTIES IN THE MEDICAL SERVICES

Wounded.—War Subs. Capts. N. H. H. Golledge and W. Lamb, and Lieuts. C. R. Forrest and T. Notman, R.A.M.C.

Missing.—Capt. W. E. Church, R.A.M.C.

Missing, presumed killed on active service.—Surg. Lieut. G. S. Davis, R.N.V.R.

Medical Notes in Parliament

Medical Research

On June 20 Mr. SALT asked the Lord President of the Council whether any plans were under consideration for expanding the research programme of the Medical Research Council in regard to medicine and all related fields as soon as circumstances and available personnel allowed, and whether he was satisfied that it had, or would have, sufficient funds available for the purpose.

Mr. ATTLEE replied that various plans were under consideration, and the Medical Research Council had already been able to initiate certain new schemes with a view to development as soon as circumstances permitted. Among other things, they had recently established a research unit in applied psychology at Cambridge; and research units in industrial medicine, human nutrition, and otology in London. The new building for the National Institute for Medical Research, completion of which had been interrupted by the war, would also make it possible to expand the Council's central establishment. The Government had already stated its intention of giving full support to research work.

Army Casualties

On June 27 Mr. CHURCHILL, replying to Dr. Elliot, said that on February 16 he informed the House that up to February 12 the following casualties had been sustained by the British Armies in Italy, including Dominion and Indian troops: killed, 7,635; wounded, 23,283; missing, 5,708—total, 36,626. Between that date and the entry into Rome these Forces sustained the following further casualties: killed, 6,696; wounded 24,683; missing, 5,117—total, 36,496. Our total casualties, therefore, from our landing in Italy to the fall of Rome were: killed, 14,331; wounded, 47,966; missing, 10,825—total, 73,122.

These figures were for Army casualties only, Navy and Air Force losses being excluded. This was the basis on which the earlier figures were given in February, it having been found impossible to give a figure for the other two Services exclusively relating to operations in Italy as distinct from the other operations of the Navy in the Mediterranean and of the Air Force over the Mediterranean, Germany, Central and Eastern Europe, and the Balkans.

Aid for Scientific Research

Prof. HILL asked the Lord President of the Council to which of the three bodies under his direction—the Department of Scientific and Industrial Research, the Medical Research Council, and the Agricultural Research Council—applications should be directed for financial assistance to research on genetics, cytology, vital statistics, biophysics, general physiology, and experimental psychology. Mr. ATTLEE said that where there was no indication to the contrary in a particular case it would be appropriate to address applications in the first instance to the Medical Research Council if they related to human genetics, vital statistics, biophysics, general physiology, or experimental psychology. The Department of Scientific and Industrial Research, the Medical Research Council, and the Agricultural Research Council aided specific projects for fundamental research when further knowledge was required in the fields for which they were responsible, even if it could be shown that such researches had an immediate application to industry, medicine, or agriculture.

Hospital Treatment of Normandy Casualties

Mr. ARTHUR HENDERSON announced on June 29 that for the time being casualties from Normandy would have to be treated in the hospitals which could be most conveniently reached from the port of disembarkation. As soon as circumstances permitted, wounded men would once more be sent to suitable hospitals as near their homes as possible. Patients requiring treatment in specialized hospitals would continue as before to be sent to those hospitals wherever they were located.

Health Division of UNRRA

Mr. GEORGE HALL, in reply to Capt. Plugge on June 28, said that the divisions of UNRRA which dealt with health, nutrition, agriculture, and other relevant matters had been placed under directors and deputy directors appointed for scientific or technical qualifications and experience. Recruitment and organization of the staff both in London and Washington were still in progress. Instances illustrative of the qualifications and experience of the scientific staff generally were:

Health Division, Washington. Director, Dr. W. A. Sawyer, formerly Director of the International Health Division of the Rockefeller Foundation.

Health Division, London. Director, Dr. A. Topping, formerly Deputy Medical Officer of Health to the L.C.C.; Deputy Director, Dr. Neville Goodman, formerly Deputy Senior Medical Officer, Ministry of Health.

Medical Auxiliaries in an N.H.S.—In reply on June 29 to Sir Ian Fraser, Mr. WILLINK said the aid of masseurs and physiotherapists would be required in the new comprehensive service. The total demand on their services was thus likely to be considerably increased. Whether private practice in these specialties would be diminished he could not say, but there would be no interference with the right to give or receive private treatment.

The Nursing Situation.—Answering Mr. Sorensen on June 22 Mr. WILLINK said the strain upon nurses working in hospitals was in many cases severe. While the shortage of nurses had hitherto prevented many hospital authorities from reducing working hours to the level generally considered to be desirable, there had recently been a substantial improvement in the staffing position. He understood that 3,200 more nurses were employed in hospitals and similar institutions on April 16, 1944, than at January 1, 1944. Nursing work enjoyed the highest possible priority. Any girl who desired to become a nurse was, with negligible exceptions, given permission to enter upon the work. Women with previous nursing experience were freely released to return to the profession. Steps were taken to bring information about nurses to the notice of suitable women and the need for additional nurses was impressed on them. This need was also made known to school-girls.

Medical Education.—Mr. WILLINK said on June 22 that the arrangements for the future training of medical students have been fully reviewed by Sir William Goodenough's Committee on Medical Schools, and the committee's recommendations will shortly be published.

Notes in Brief

The Statute Law Revision Committee has listed, among the subjects suitable for its consideration, dangerous drugs, lunacy, and the unconsolidated part of the Pharmacy and Poisons Acts.

On June 20 Major Lloyd George informed Mr. S. Davies that he had received the report from the Pneumoconiosis Advisory Committee which he set up last year. The report would be made available to the public.

The following have been appointed Honorary Physicians to the King for a period of three years: Andrew Davidson, M.D., Chief Medical Officer, Department of Health for Scotland; E. R. A. Merewether, M.D., Senior Medical Inspector, Factory and Welfare Department, Ministry of Labour and National Service; Prof. G. Selby Wilson, M.D., F.R.C.P., Professor of Bacteriology, London School of Hygiene and Tropical Medicine, and Director of the Emergency Public Health Laboratory Service; W. R. Thomas, M.D., F.R.C.P., Senior Commissioner, Board of Control; J. A. Charles, M.D., F.R.C.P., Deputy Chief Medical Officer, Ministry of Health (until recently Medical Officer of Health, Newcastle-upon-Tyne); H. M. C. Macaulay, M.D., Medical Officer of Health, Middlesex County Council.

The following have now completed their term of office as Honorary Physicians to the King: Sir Henry Bashford, M.D., F.R.C.P., Medical Adviser to the Treasury; Sir Weldon Dalrymple-Champneys, Bt., D.M., F.R.C.P., Deputy Chief Medical Officer, Ministry of Health; R. Veitch Clark, M.B., lately Medical Officer of Health, Manchester; W. G. Clark, M.B., Medical Officer of Health, Edinburgh; James Ferguson, M.B., Medical Officer of Health, Surrey County Council.

No. 24

INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended June 17.

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for : (a) England and Wales (London included). (b) London (administrative county). (c) Scotland. (d) Eire. (e) Northern Ireland.

Figures of Births and Deaths, and of Deaths recorded under each infectious disease, are for : (a) The 126 great towns in England and Wales (including London). (b) London (administrative county). (c) The 16 principal towns in Scotland. (d) The 13 principal towns in Eire. (e) The 10 principal towns in Northern Ireland.

A dash — denotes no cases ; a blank space denotes disease not notifiable or no return available.

Disease	1944					1943 (Corresponding Week)				
	(a)	(b)	(c)	(d)	(e)	(a)	(b)	(c)	(d)	(e)
Cerebrospinal fever	58	4	29	2	—	59	2	27	1	1
Deaths		—	1				1	2		
Diphtheria	456	23	111	82	20	540	28	159	65	25
Deaths	6	1	—	—	—	10	1	3	—	3
Dysentery	191	28	63	3	—	164	10	56	—	1
Deaths				—	—				—	—
Encephalitis lethargica, acute	—	—	—	3	—	2	—	1	—	—
Deaths		—					1			
Erysipelas		—	44	8	3		—	58	7	3
Deaths		—					—			
Infective enteritis or diarrhoea under 2 years				17					19	
Deaths	43	10	12	10	3	52	13	9	7	5
Measles	2,623	199	429	134	43	6,472	314	432	27	27
Deaths	—	—	3	—	—	1	—	2	—	—
Ophthalmia neonatorum	63	9	24	—	—	78	5	25	—	—
Deaths										
Paratyphoid fever	5	—	—	2 (B)	—	12	1	2	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Pneumonia, influenzal*	490	40	3	6	3	587	31	6	—	—
Deaths (from influenza)	6	1	—	—	—	13	—	4	—	—
Pneumonia, primary			199	19				208	14	4
Deaths		23		3	7		17		3	10
Polio-encephalitis, acute	2	—				—	—			
Deaths		—					—			
Poliomyelitis, acute	11	—	1	—	—	5	1	—	—	—
Deaths		—					—			
Puerperal fever		4	18		—		—	17		—
Deaths										
Puerperal pyrexia†	167	15	15	4	3	154	15	20	4	2
Deaths		—					—			
Relapsing fever	—	—			—	—	—			—
Deaths										
Scarlet fever	1,544	86	212	28	65	1,686	144	251	44	51
Deaths	2	—	—	—	—	—	—	—	—	—
Smallpox	—	—	—	—	—	—	—	—	—	—
Deaths				—	—				—	—
Typhoid fever	8	—	2	6	—	7	—	3	9	—
Deaths	1	—	—	—	—	—	—	—	—	—
Typhus fever	—	—	—	—	—	—	—	—	—	—
Deaths				—	—				—	—
Whooping-cough	2,628	250	197	64	17	1,918	101	210	26	53
Deaths	15	1	2	3	—	7	2	5	—	2
Deaths (0–1 year)	315	40	57	22	16	287	40	62	29	29
Infant mortality rate (per 1,000 live births)										
Deaths (excluding still-births)	3,943	622	587	176	112	3,754	486	592	168	130
Annual death rate (per 1,000 persons living)			13·5	11·4	‡			13·3	11·0	‡
Live births	7,525	864	906	407	298	5,971	748	974	371	317
Annual rate per 1,000 persons living			18·4	—	‡			19·9	24·4	‡
Stillbirths	228	27	39			208	22	29		
Rate per 1,000 total births (including stillborn)			41					29		

*Includes primary form for England and Wales, London (administrative county), and Northern Ireland.

† Includes puerperal fever for England and Wales and Eire.

‡ Owing to evacuation schemes and other movements of population, birth and death rates for Northern Ireland are no longer available.

EPIDEMIOLOGICAL NOTES

Discussion of Table

In *England and Wales* notifications of measles dropped by 455, and those of acute pneumonia by 248, but those for whooping-cough and scarlet fever went up by 155 and 116 respectively.

Diphtheria notifications continued to fall, there being 14 fewer cases recorded than last week's low total. The only increase of any size in the incidence of scarlet fever occurred in Essex, where the total was 31 higher than last week. Acute pneumonia was less prevalent throughout the country. Whooping-cough had a slightly higher incidence in most areas, especially in the south-east, where last week's total was exceeded by 98 ; in the south-west notifications fell by 65. Lancashire reported 140 fewer cases of measles than last week, Wiltshire 71, and Kent 59. In Northumberland, however, notifications went up by 58.

There were 10 more cases of dysentery reported than last week. The chief centres of infection were Lancashire 35, London 28, Derbyshire 17, Kent 14, Gloucestershire 11.

In *Scotland* the total diphtheria notifications fell by 52, the number of cases reported being the smallest during recent months. Dysentery continued to decline, over half the total cases occurring in three areas: Glasgow 16, Edinburgh 10, Stirling County 10. The rise of 41 in the total notifications of whooping-cough was contributed mainly by Glasgow.

In *Eire* measles notifications fell by 45, but diphtheria was still prevalent, 35 of the 82 cases being notified in Dublin C.B.

Quarterly Returns for Eire

The birth rate during the March quarter was 22.7 per 1,000, this being 0.6 above that for the corresponding quarter of last year. Infant mortality was high—101 per 1,000 births. The general death rate was 20.1 per 1,000—3.0 above the rate for the first quarter of 1943. Deaths from pulmonary tuberculosis were 852, and from other forms 242, the former being 107 fewer, and the latter 18 more, than in the first quarter of 1943. There were 521 deaths from the principal infectious diseases, almost 200 more than the average of the five preceding first quarters ; 287 deaths were due to diarrhoea and enteritis under 2 years of age, compared with an average of 169.

Week Ending June 24

The notifications of infectious diseases in England and Wales during the week included: scarlet fever 1,451, whooping-cough 2,424, diphtheria 487, measles 2,538, acute pneumonia 452, cerebrospinal fever 53, dysentery 201, paratyphoid 7, typhoid 10.

Medical News

Mr. Desmond MacCarthy's Lloyd Roberts Lecture, announced for July 11 at the Royal College of Physicians of London, has been postponed.

The three lectures on colloid science by Prof. E. K. Rideal, F.R.S., announced on June 17 (p. 831) have been postponed.

At a meeting of the Clinical Society of the Royal Eye Hospital to be held at the hospital (St. George's Circus, Southwark, S.E.) on Friday, July 28, at 5.30 p.m., Dr. D. G. Ardley will speak on sulphonamide therapy.

At the annual general meeting of Epsom College held on June 16 Lord Leverhulme, the president, stated that at the end of the year under review the deficit of £1,500 had been entirely cleared off and there was a surplus of £1,780, a proof that the co-operation between the Council, the staff, and the boys must have continued with good effect. For the first time since 1939 the school account showed a credit balance of £700, which must prove of great help in view of the heavy expenditure that would be necessary for repairs after the war. The College as a medical foundation could not complain that both medicine and education had had a very full share of the political limelight during the past twelve months.

The Save the Children Fund has received news of the arrival in the Middle East of its third foreign relief team which, under the direction of UNRRA, is available for working in the liberated territories. This team is led by Dr. Katherine S. Macphail, medical superintendent of the Anglo-Yugoslav Children's Hospital in Yugoslavia, who has been attached to the Save the Children Fund for more than twenty years past. Dr. A. B. Howitt, M.P., chairman of the Parliamentary Medical Committee, has accepted an invitation to serve as an honorary medical adviser to the Save the Children Fund, and the British Paediatric Association has also promised to assist the fund in a similar capacity. These appointments are in addition to the existing hon. medical advisers, Dame Louise McIlroy, Dr. Matthew B. Ray, and Dr. Leslie Housden.

The annual general meeting of the British Empire Leprosy Relief Association was held at the India Office on June 29 under the chairmanship of the Right Hon. Oliver Stanley, Secretary of State for the Colonies. Sir William Peel, chairman of the executive committee, in an address reporting on the work of the Association during the year 1943, said that war conditions made it impossible to embark on any new schemes, but the work in hand had been well maintained, with some expansion along existing lines. The medical secretary, Dr. Ernest Muir, continued in charge of the Chacachacare leper settlement in Trinidad, having been lent to that Colony for the period of the war, and he had paid visits to British Guiana and Jamaica. The Association was indebted to Sir Leonard Rogers for carrying out Dr. Muir's duties at home in an honorary capacity and for continuing to edit the *Leprosy Review*. The committee much regretted the resignation on health grounds of Sir Frank Carter from the post of honorary treasurer; he had been a supporter of the Association since its inception over twenty years ago. Sir Leonard Rogers addressed the meeting on medical aspects of the leprosy problem.

At a meeting of the Executive Committee of the Scottish National Blood Transfusion Association held in Edinburgh it was stated that the number of enrolled blood donors throughout Scotland had increased by over 13,000 during the year to March 31, 1944. The extension of the mobile bleeding teams, each consisting of a medical officer and technical and nursing assistant, had proved highly successful. These teams, in specially equipped cars, had visited many outlying areas and had attended at hundreds of factories throughout Scotland for the purpose of testing and bleeding donors with the minimum of inconvenience to their work. It was reported that the plant installed for the preparation of dried plasma had operated very successfully, and the storage of dried plasma had proved of great advantage in meeting sudden demands and in acting as a reserve for the Armed Forces, the Merchant Navy, and for civilian needs.

Mr. A. B. Inglis, Dr. C. H. Kellaway, F.R.S., Messrs. L. G. Matthews and J. Russell, have been elected directors of the Wellcome Foundation Ltd. Dr. Thomas Dewar has been appointed secretary.

Lord Hailey has been elected president of the Research Defence Society. Prof. A. V. Hill is still chairman of committee, and Sir Leonard Rogers continues as hon. treasurer and acting hon. secretary.

Dr. T. V. Crichlow, D.M.R.E., assistant radiologist to the Middlesex Hospital, has been appointed radiologist to the British Legion Village, Preston Hall, Maidstone.

A mass radiography service to facilitate the early diagnosis of tuberculosis was officially inaugurated at St. James's Hospital, Leeds, on July 3. This unit will make possible the examination of between 1,000 and 1,500 persons a week, and it is proposed to take it to large works and schools, as well as to operate it at the hospital.

The British Pharmacopoeia Commission announces that the requirement for iodine value of glycerides in oleum hippoglossi, halibut-liver oil, Fourth Addendum to the *British Pharmacopoeia*, 1932, p. 23, is changed from "112 to 130" to "112 to 150."

The Director of Health for the European Region of UNRRA, Dr. Andrew Topping, has invited representative members of the nursing profession to assist him in the consideration of problems arising from the demand for nurses for relief work in the liberated territories of Europe. A consultative committee has been set up to deal with questions of terms and conditions of service as well as with applications for employment as nurses with UNRRA. The committee has met twice and has selected the chief nursing officer and two district public health nursing officers for a mission over-seas. Further meetings will be held to consider vacancies in the public health nursing field as occupied countries are liberated and health missions are established.

The Royal College of Surgeons of England has acquired freehold property in Lincoln's Inn Fields, including premises that were until recently held by the College of Estate Management. The object of these purchases is to safeguard future development. To the east of the present building the Royal College of Surgeons now owns the vacant sites of Nos. 35, 36, and 37, and it also owns No. 38, which is still standing. To the west it owns the freeholds of Nos. 44 and 45. In addition to the parts of the existing College which only need restoration there remain the parts of the original site which were occupied by buildings destroyed by enemy action. The old lecture theatre and two large museum halls originally occupied this space.

Mr. F. W. Gamble, Ph.C., vice-chairman and one of the managing directors of Allen and Hanburys Ltd., has, owing to prolonged and serious illness, tendered his resignation from the Board. Mr. Gamble's fellow directors have put on record their appreciation of his earnest and devoted work in the interests of the company and of pharmacy for close on 50 years.

Dr. Emil Feer, formerly professor of children's diseases at Zurich University, was 80 on March 5.

Letters, Notes, and Answers

All communications with regard to editorial business should be addressed to THE EDITOR, BRITISH MEDICAL JOURNAL, B.M.A. HOUSE, TAVISTOCK SQUARE, LONDON, W.C.1. TELEPHONE: EUSTON 2111. TELEGRAMS: *Aitiology, Westcent, London.* ORIGINAL ARTICLES AND LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone unless the contrary be stated.

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ANY QUESTIONS?

Treatment of Calcium Deficiency

Q.—*What is the latest method of treating a case of calcium deficiency characterized by fragility of the bones associated with at least one spontaneous fracture? Blood calcium is low—e.g., a report dated June, 1943, gives it as 8.5 mg. per 100 c.cm., and the accompanying x-ray report was gross calcium deficiency. Later reports say that the blood calcium is still low. The patient is a girl of 1[illegible] and the condition began about two years ago. There has been marked improvement under treatment with intramuscular calcium, vitamin D, and U.V. therapy. There is a history of abdominal tuberculosis in childhood, and presumably the difficulty in absorption of calcium is due to disorganization of the mesenteric glands. I have heard of a method in which alum acetate is given by mouth with the idea of precipitating phosphorus and allowing calcium to be absorbed.*

A.—A little more information, especially about the amount of fat in the faeces, would make this question easier to answer. Assuming that the diagnosis is correct, treatment with calcium, vitamin D, and U.V.R. is quite correct, though there should be no need to give the calcium intramuscularly. The vitamin D will probably sufficiently increase the absorption from the intestine. Treatment with aluminium acetate was first suggested by A. J. Helfet in 19[illegible] (*Brit. J. Surg.*, 1940, **27**, 651). Helfet suggests that the function of the parathyroids is to control the level of inorganic phosphate in the blood, a rise in blood phosphate resulting in stimulation of the parathyroids and therefore, indirectly, in the removal of calcium from the bones. He gives 75 minims of the *B.P.* liquor of aluminium acetate a day. This combines with the phosphate in the intestine to form insoluble aluminium phosphate, thus lowering in turn the blood phosphate, the activity of the parathyroids, and the mobilization of bone calcium. Aluminium acetate is quite harmless even if given over long periods, and Helfet's results suggest that the method is worthy of trial. Helfet does not give extra calcium, but in the case described a continuation of a high calcium and high vitamin D intake is to be recommended.

Sulphonamides and Deafness

Q.—*Is there any definite evidence for the suggestion that sulphonamides cause deafness in infants? If so, what are the prognosis and treatment (if any)?*

A.—We are aware of no foundation for this suggestion, and indeed of no mention of it in medical literature. If such a belief has arisen, presumably in the lay mind rather than the profession, it may be accounted for by the fact that the sulphonamides are largely used in treating conditions which are themselves liable to be followed by deafness, such as middle-ear disease and cerebrospinal fever.

Mental Deficiency

Q.—*I have as a patient a child of 9 years who has never been able to speak. She has no physical abnormality, although her mental capacity is, so far as I can see, somewhat subnormal. She tends to be aggressive, and her expressions are limited to such vague utterings as "bah." She is not deaf. Can you tell me what classification she falls into, and what the prognosis is?*

A.—Deafness being excluded, by far the likeliest explanation is that the child is a low-grade mental defective. In that event the prognosis is hopeless, apart from making the best, by care and skilful training, of the patient's limited mental endowments. Such conditions as word-deafness, which might supply an alternative explanation, are extremely rare. A history of the child's development, together with a mental examination, should place the diagnosis beyond doubt. Thus, for example, at what age did she walk and when did she establish control over her sphincters? Can she look after herself, feed and dress herself, execute commands and carry out commands? When did she learn to do so? What is her performance, compared with the normal child of 9, on intelligence tests of a non-verbal character?

Amoebic Dysentery in a Child

Q.—*I would be grateful for advice on the treatment of amoebic dysentery in a child 5½ years old who contracted this disease when 15 months old, and after treatment for several months was apparently cured with stovarsol capsules. I was called to see the child the other day, and examination of the stools showed a recurrence of the trouble. The child had been in the Gold Coast up till two years ago, when she arrived in this country.*

A.—Amoebic dysentery is extremely rare in European children. Before treating the disease it is imperative that parasites be found and identified and the diagnosis confirmed. Neither stovarsol, the emetine preparations, nor any other drug alone will eradicate the infection. It is necessary to give a combination of drugs to this end, over a period of about three weeks, and for this purpose the child should enter hospital.

A Case of Congenital Syphilis

Q.—*A girl of 22 was found to have interstitial keratitis 2½ years ago, and a positive Wassermann. She has had repeated courses of N.A.B. (total 4 g.) and bismuth, with mercury by mouth between. Her Wassermann is still positive and the Dreyer keeps about 1.0. (a) How long should the above treatment (if approved) be continued? (b) Can one hope to make the Wassermann negative, and if not, is she infectious, if she marries, to her husband, and to a child? Incidentally her father knew he had gonorrhoea but not syphilis, and both he and his wife have negative Wassermanns and Dreyers.*

A.—This appears to be, almost certainly, a case of congenital syphilis, in spite of the negative blood reactions of the father and mother. The first thing to do is to test the cerebrospinal fluid for Wassermann, cells, protein, and collodial gold curve. Assuming these are negative, further treatment than that already given is indicated—a total of 4 g. of N.A.B. is a relatively small amount—and should extend over a period of at least two years; neoarsphenamine in weekly doses of 0.45 g. intravenously, and an insoluble preparation of bismuth in weekly doses of 0.2 g. of the metal intramuscularly, should be given concurrently in courses of 10 injections of each, with rest intervals of about three months between consecutive courses; a total of not fewer than 30 injections of arsenic and 30 of bismuth should be given; this includes treatment already administered. In addition, mercury in the form of collodial mercury sulphide may be given during intervals between courses in doses of 5 c.cm. intramuscularly once a week. Vitamin E complex, combined with vitamin B complex (Stone, S., *Arch. Ophthal.*, Chicago, 1943, 30, 467), is said to be a valuable adjunct in treatment.

On the other hand, should the C.S.F. be positive, pentavalent arsenicals and some form of fever therapy are indicated. These should be given only by an expert. It is extremely unlikely that the serum reactions will be reversed to negative, but prolonged treatment is recommended, mainly with the object of preventing relapse. Assuming this is a case of congenital syphilis, the patient is not infectious, nor would she convey her disease to husband or child; third-generation syphilis is a very doubtful possibility, and in any case extraordinarily rare.

Sedatives for Injured Children

Q.—*What is a safe and correct dose of morphine to give hypodermically to a child suffering from injuries, say, resulting from a road accident, and below what age is morphine in such cases unsafe? I have seen cases of young children who, in spite of fracture of both bones of the lower leg, struggle violently, flinging the injured limb about in the air like a flail and offering the most stubborn and screaming violence to any attempt at splinting or even quietening.*

A.—Morphine gr. 1/75 for each year of the child's age may be regarded as a safe dose. While this applies to any age, tinct. opii minims 2 for each year of the child's age is often more satisfactory than morphine, especially in infancy. In answer to the statement in the latter half of the question, it may be remarked that in the circumstances described a sedative would prove more valuable than an anodyne—say, syrup of chloral rather than morphine.

What is "Biotin"?

Q.—*Is there such a thing as vitamin H? Is it true that it is essential to the growth of hair and its deficiency is responsible for premature baldness? If so, is vitamin H available in the market? How is it administered? What are its composition and origin?*

A.—Vitamin H, now known as biotin, is a crystalline, water-soluble compound with the composition 2-keto-3: 4-imidozolido-2-tetrahydrothiophene-*n*-valeric acid. It was synthesized last year in America by Harris. Biotin is a member of the vitamin B complex, and is therefore found in foodstuffs containing the latter, particularly liver, yeast, kidney, pancreas, adrenals, and cereals. Biotin is essential for the complete nutrition of many animals and possibly of man, since Sydenstricker in America has produced a deficiency syndrome in volunteers on diets poor in biotin. The physiological function of biotin is unknown. Rats given diets deficient in biotin develop a scaly, greasy dermatitis and atrophy of the fur. This has given rise to the misconception that biotin is essential for the growth of human hair, and that its deficiency results in premature baldness. There is absolutely no evidence for this. The cause of human baldness is unknown, and neither biotin nor any other known vitamin can prevent or cure it.

Biotin is available commercially only in the U.S.A. It is extremely expensive, and our present knowledge of it does not warrant its use in any clinical condition. Clinical biotin deficiency is very unlikely, as biotin is widely distributed in foods. A deficiency can be produced artificially by feeding large quantities of raw egg-white—e.g., 200 g. of dried white daily. A case of biotin deficiency has been reported in an Italian who ate a large number of raw eggs a day and neglected his diet generally (see *Journal*, 1943, **2**, 271). Raw eggs (not cooked) contain a principle known as avidin which inactivates biotin.

Artificial Insemination

Q.—*(a) Do facilities exist in this country through any organization for the induction of artificial insemination, using an exogenous donor? (b) What prospects of success attend such a procedure, if indeed it has been put into practice in this country? (c) Where ejaculation cannot voluntarily be effected, has any other procedure, such as seminal vesicle aspiration of the husband, ever been attempted? My questions arise in the case of a childless marriage where both parties would welcome artificial insemination as an alternative to adoption.*

A.—No facilities at present exist in this country for the obtaining of donated semen. When this is available, and a proper technique is adopted, artificial insemination gives excellent results. There is no means of obtaining semen otherwise than by ejaculation, and attempts to obtain it by aspiration are useless. In America there exist special fertility clinics where all the investigations and treatment of infertility, including insemination with donated semen, can be carried out. An attempt is being made to establish such a clinic in London. At present this class of work is only being done privately by a comparatively few medical men. This is a field of medicine which needs developing.

Keeping Properties of Syrupus B.P.

Q.—*I find that syrupus B.P. is liable to ferment when kept in store for only two or three weeks in a room where there is an electric radiator. Some makes are more susceptible than others. If the syrupus were kept in a cool cellar, would it not ferment? What is the optimum temperature for storing it?*

A.—Fermentation is frequently seen in syrup in dispensaries, although syrupus *B.P.* fully up to the official standard does not itself readily ferment. Any one of a number of factors may contribute to fermentation, and some of the more important points which have to be watched are: (1) The sugar used in making the syrup must be of *B.P.* quality. Ordinary grades of sugar frequently contain impurities which encourage fermentation. (2) The temperature should be kept as low as possible during manufacture. High temperatures frequently used in large-scale manufacturing produce appreciable quantities of the more readily fermentable invert sugar. (3) The syrup when made should be put into dry bottles when almost cold. It has been shown that dilution with as little as 2% water renders *B.P.* syrup liable to fermentation, and dilution to this extent may be effected by putting syrup into wet or badly drained bottles. If the bottles are filled while the syrup is still hot, condensation of water vapour may take place and the upper layer of the syrup become likewise diluted. (4) The syrup should be stored in a fairly cool place. Temperature alone will not cause fermentation, but a warm atmosphere will naturally encourage it in a syrup already rendered liable to ferment. On the other hand, storage at too low a temperature is to be avoided, as syrupus *B.P.* is a saturated solution of sucrose at ordinary temperature, and lower temperatures tend to produce crystallization of this sugar.

Types of Umbilical Hernia

Q.—*Is there any record of the value of strapping, with or without a coin, in the case of umbilical hernia in infants? It would be of value to know the relatively immediate results, and also the results on the approach of middle age, pregnancy, etc.*

A.—The confusion in the teaching about umbilical hernia in infants is due to failing to distinguish between the two main types.

1. *True Umbilical Hernia.*—In this the protrusion comes through the middle of the remains of the umbilical cord, and carries up with it a kind of fibrous collar from the linea alba. When the sac is empty this collar can be felt under the skin, and the margins of the hole in the linea alba from which it arises are definite and stiff. Hernias of this kind invariably cure themselves; the fibrous tissue round the neck of the sac has an inherent tendency to contract.

They are not dangerous, as, for some not very obvious reason, strangulation of an umbilical hernia in infancy is practically unknown; but they often upset an infant very much, through the discomfort. The infant cries, and the crying increases the protrusion. The spontaneous healing, which may not occur until well on in childhood, can be accelerated in two ways. The first is by strapping with a plain piece of two- or three-inch-wide zinc oxide sticking plaster, applied in such a way as to close the hernial opening by holding a fold of skin over it. Coins, pads, and the common use of elastic sticking plaster all detract from efficiency; and the most inefficient of all is the rubber belt, which is usually, as one mother said to me, worn as a brassière. However, the tendency to spontaneous cure is so strong that all methods have their successes. The second method of treatment is by a subcutaneous ligature of linen. In the roaring and struggling type of baby this will often succeed in curing the condition right away when strapping fails.

2. *Para-umbilical Hernia.*—Here the protrusion is not up the middle of the umbilicus, but slightly above, or less often below. There is no fibrous collar, and the hole in the linea alba is wide, with weak soft margins. This type of hernia is much less common than the first. It has no tendency to spontaneous cure, and an operation is necessary if a good abdominal wall is desired. Strapping and subcutaneous ligature are both useless in its treatment, but a simple longitudinal overlapping of the two rectus sheaths, performed through a transverse incision, is very satisfactory. There is no hurry about operating, as the soft margins of the hernial opening do not cause discomfort, and it can be postponed to 4 years old with advantage.

It is an interesting point whether either of these two types predisposes to the dangerous umbilical herniae of later years. Information on this point, however, will not be gained till knowledge in our profession is more systematically collected than it is now.

Intermittent Hydrarthrosis

Q.—*A girl aged 19 complains of periodical effusions into various joints. These occur at irregular intervals, last about a week, and disappear leaving no joint damage. There is no pain, redness, or constitutional disturbance, and they seem to have occurred at irregular intervals since the age of 5. The heart appears normal. B.S.R. (Wintrobe) 18 mm. in 1 hour, with 45 c.cm. packed red cell volume, the blood being taken just after an effusion had occurred. There is no anaemia. She has also seen from time to time spots which look like little "blood spots" under the skin. It has been suggested that this is Schönlein's purpura. What is the most effective treatment to prevent recurrence of these effusions?*

A.—This is a case of the condition known as intermittent hydrarthrosis and is probably an allergic response to focal sepsis. The writer has seen such cases develop true infective arthritis later, and this is a possibility seriously to be borne in mind. The slight increase in the sedimentation rate points to the probable presence of a septic focus and the most likely site is the tonsils, which should be carefully investigated. The purpura may also be anaphylactoid in nature. Protein shock is probably the most promising line of treatment, using T.A.B. vaccine, beginning with an injection of 50 millions intravenously, increasing at intervals of five days by 50 millions for the second dose and 100 millions for the later doses, up to a maximum of 500 millions. Calcium with vitamin D would probably also be beneficial, administered by intramuscular injection and followed later by cod-liver oil as a means of improving calcium retention and raising the general resistance.

It would be of interest of inquire whether the patient suffered from cyclical vomiting in early childhood, which is the case in many allergic subjects. Oriel has pointed out that persons with an allergic tendency easily deplete their glycogen reserve, and the effect of reinforcement of carbohydrates in the diet when the attacks threaten would be interesting. Lichtwitz, in his recent book on rheumatic fever, regards many rheumatic conditions as allergic in nature and brings forward strong arguments to support his thesis. He calls attention to the fact that menstruation may occasionally give rise to effusion of a temporary character into a joint, and Schlesinger has stated that these intermittent hydrarthroses cease during pregnancy. Platelet counts might throw a light on the outbreaks of purpuric spots.

INCOME TAX

Depreciation of Furniture and Instruments

D. M. wishes to claim a depreciation allowance in respect of wear and tear of surgery and waiting-room furniture and instruments. The inspector objects and offers replacement costs instead of the allowance.

*** The allowance is given in respect of "plant and machinery," and that phrase has to be construed in accordance with its generally accepted meaning. We consider it would clearly cover large and expensive items of professional equipment—e.g., *x*-ray apparatus—but doubt whether "furniture" could be brought within it. So far as instruments are concerned, the Schedule D rule provides for the deduction of sums expended for the supply, repair, or alteration of any implements used for professional purposes, and as both depreciation allowance *and* cost of replacement cannot be deducted, the inspector of taxes is right in refusing the former.

"Pay as you Earn"

E. P. joined one of the Services in January, 1940, and since then has suffered tax by deduction from his pay, and at the same time deductions in respect of tax on his salary as assistant M.O.H. earned prior to joining the Service. Has he any remedy, or compensation for loss of the tax holiday when he returns to his civil employment?

*** Individuals in the service of the armed Forces of the Crown are not within the "pay-as-you-earn" system as such, though tax is deducted currently. This matter was discussed in Parliament during the Budget debates, and the Chancellor of the Exchequer has promised to deal with the matter by making some cash payment to those affected. No information has been forthcoming yet as to how these payments will be calculated or subject to what conditions they will be made.

LETTERS, NOTES, ETC.

The Dilemma of the "Unclean" Nurse

"GENERAL PRACTITIONER" writes from a country district in England: I am tempted to send a note on a situation which sometimes arises, and which I am sure could be tackled by "authority" in a more understanding way. In this district we are blessed with a district nurse who is particularly intelligent and well trained. She adheres to all the rules, is very clean surgically speaking, and thoroughly knows her job. Every now and then, due to no fault of hers—but to drought, dust, and the natural uncleanliness of the human species—something septic occurs; the last, and this makes me write, was a cellulitis of the breast following a cracked nipple on the tenth day after confinement. Now, the nurse, in duty bound, reports this to the "local authority" and is counted unclean while looking after this case. As she may do no midwifery this scattered district has either (1) to borrow a nurse from an equally scattered district adjoining, herself overworked; or (2) to get a relief nurse from headquarters, unused to the district, very expensive to the local association, and, as things are, very hard to accommodate. Now is all this really necessary? Either a nurse is trained or she isn't. If she is, she knows as well as I do how to go from one case to another without carrying a load of germs with her. If she isn't, she should not be practising midwifery at all. Obviously the rules are not idle restrictions, and are made to protect the public from gamps and other ghouls; and obviously there are less clean nurses who might be a source of danger. But could not the opinion of the doctor treating the case be allowed to carry some weight? He knows just how septic the case is; and he knows, none better, if the nurse is careful and surgically clean. In the case I quote there seems to be absolutely no reason for all this fuss. When one remembers that the G.P. can be called from whatever he is doing—no matter how septic—to cope with an emergency confinement, and cannot answer that he is sorry but he is feeling too septic to help, it makes these precautions into rather a farce. Moreover, the nurse herself can do dressings, give enemata, and wash dirty old folk to her heart's content, contacting goodness knows what bacterial infections without becoming "unclean." It will, of course, be quite different when this medical millennium we are promised arrives, but in the meantime when supplies of nurses and doctors are short could not an understanding "authority" allow that even C.M.B. rules can be modified when occasion demands, and that a good nurse need not be unclean even when seeing an infected case?

Bee-stings and Fish

Dr. C. R. STEEL (Hartfield) writes: Recently I was stung by bees two hours after a fish lunch and in a short while began to show signs and symptoms usually associated with anaphylaxis. When these had developed to the stage of disfiguring oedema and uncomfortable generalized urticarial rash, the expected relief was obtained with an injection of adrenaline. The swelling and marks of the rash took twenty-four hours to disappear. Dr. R. Stanley in *Bee-craft* of October, 1942, notes the association, which I have not seen recorded previously, of severe reactions following stings in a period when one is sensitive to fish protein. As I had not previously had reactions to either fish or bee-stings the point arises as to whether the dose received in a period of time, considering the sting is allied to a hypodermic injection, is the determining factor as to whether a reaction is experienced or not.

An Improved Saccharometer: Correction

Dr. J. E. STANLEY LEE writes: I regret that, owing to an error in the final draft, the formula was transposed in my note published on June 24 (p. 847). The formula should read:

$$\frac{25}{\text{c.cm. diluted urine used}} = \% \text{ sugar in specimen.}$$